USSR

BYKHOVSKIY, A. V., et al., "Problems of Protection from Ionizing Radiation in Radiation Chemistry," M, Atomizdat 1970, 280 pp

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USSR

BYKHOVSKIY, A. V., et al., "Problems of Protection from Ionizing Radiation in Radiation Chemistry," M, Atomizdat 1970, 280 pp

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BYKHOVSKIY, A. V., et al., "Problems of Protection from Ionizing Radiation in Radiation Chemistry," M. Atomizdat 1970, 280 pp

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BYKHOVSKIY, A. V., et al., "Problems of Protection from Ionizing Radiation in Radiation Chemistry," M, Atomizdat 1970, 280 pp

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USSR

BYKHOVSKIY, A. V., et al., "Problems of Protection from Ionizing Radiation in Radiation Chemistry," M, Atomizdat 1970, 280 pp

USSR UDC 535.9

BYKHOVSKIY, D. G., GOLUBOVSKAYA, S. M., GOLUBOVSKIY, Yu. B., and KAGAN, Yu. M.

"Spectroscopic Study of Plasma Parameters at the Output of a Plasmatron. II"

Leningrad, Optika i Spektroskopiya, No. 5, May 71, pp 836-840

Abstract: The radial change in the parameters of a plasma at the output of a plasmatron was calculated on the basis of measurements of the brightness of spectral lines of ArI and Hα. The measurements were made in pure argon and in an argon-hydrogen mixture. The addition of hydrogen led to a rise in temperature at the axis and to a sharper falling off. The concentration of argon atoms in the center was lowered and they were drawn to the periphery of the arc. Electron concentrations measured on the basis of shift and on the basis of the intensity of spectral lines in pure argon were compared. The measurements are presented in graphical form.

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AA0036250

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3/70

236685 PLASMA CUTTING POWER SUPPLY consists of three sets of rectifiers in series, each supplied by its own transformer. Two sets have a rigid characteristic and the third has a sharply dropping characteristic because of choke coils in all three phases. The con actors which determine how the acts are tobe combined are controlled by the voltage across the arc. 5.2.68. as 1216109/25-27. D.G.BYKHOVSKII (17.6.69.) Buk.7/3.2.69. Class 21h. Int.Cl. B23k.

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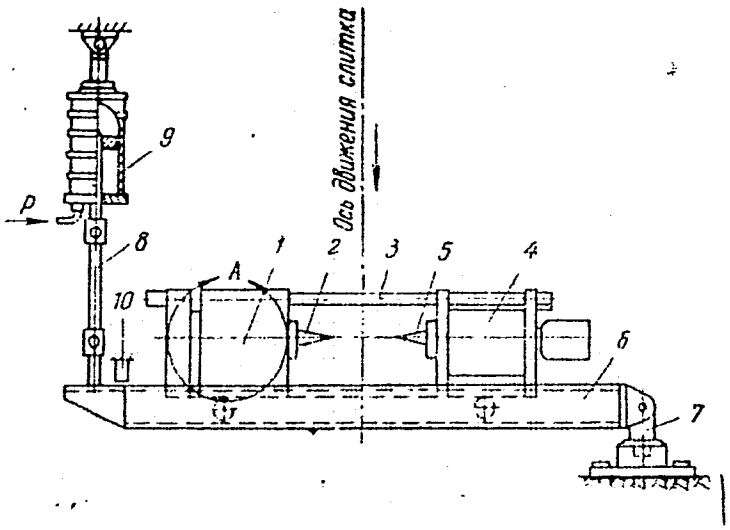
AA0036250



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19721081

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1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--DYNAMIC OF SUPERHARMONIC VIBRATION DRIVE MECHANISM -U-

AUTHOR-(02)-BYKHOVSKIY, I.I., KHAIMCHAYEV, I.S.

B

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, MASHINOVEDENIYE, NR 1, JAN-FEB 70, PP 31-38

DATE PUBLISHED-------70

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

TOPIC TAGS--DYNAMIC SYSTEM, DRIVE TRAIN, HARMONIC OSCILLATION, MECHANICAL VIBRATION, FREQUENCY CHARACTERISTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1203 STEP NO--UR/0380/70/000/001/0031/0038

CIRC ACCESSION NO--AP0103100

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520007-3"

2/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103100

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SUPER HARMONIC VIBRATION DRIVE MECHANISM IN THE FORM OF A VIBRATING SYSTEM WITH FIVE DEGREES OF FREEDOM WITH DEBALANCING EXCITER OF VIBRATIONS OF PENDULUM TYPE IS STUDIED. THE SYSTEM CONSISTS OF A BOTTOM TABLE SUPPORTED BY PLIABLE SPRINGS. A PENDULUM WITH BUILT IN DEBALANCER AND REACTION FLYWHEEL JOINED BY A TORSION UNIT IS SUSPENDED FROM THE TABLE. THE ROTATION FROM THE DRIVE IS TRANSMITTED TO THE FLYWHEEL AND FURTHER ON THROUGH TORSION UNIT TO DEBALANCER. THE UPPER TABLE IS JOINED WITH THE BOTTOM ONE BY WORKING SPRINGS. OF THE TWO GROUPS OF THE SYSTEM, ONE SERVES FOR RESONANCE AMPLIFICATION OF THE SECOND HARMONIC OF THE TORSIONAL VIBRATIONS OF THE DEBALANCER, AND THE SECOND, FOR THE AMPLIFICATION OF THE THIRD HARMONIC OF THE VIBRATIONS OF VIBRATION EXCITER FRAME. THE APPROXIMATE FORMULAS FOR THE AMPLITUDES AND INITIAL PHASES OF STEADY VIBRATIONS ARE OBTAINED. THE AMPLITUDE FREQUENCY AND PHASE FREQUENCY CHARACTERISTICS ARE PRESENTED.

UNCLASSIFIED

B

Mechanical

USSR

BYKHOVSKIY, I. I., and KHAIMCHAYEV, I. S., Moscow

"Dynamic of Superharmonic Vibration Drive Mechanism"

Moscow, Mashinovedeniye, No 1, Jan-Feb 70, pp 31-38

Abstract: A superharmonic vibration drive mechanism in the form of a vibrating system with five degrees of freedom with debalancing exciter of vibrations of pendulum type is studied. The system consists of a bottom table supported by pliable springs. A pendulum with built in debalancer and reaction flywheel joined by a torsion unit is suspended from the table. The rotation from the drive is transmitted to the flywheel and further on through torsion unit to debalancer. The upper table is joined with the bottom one by working springs. Of the two groups of the system, one serves for resonance amplification of the second harmonic of the torsional vibrations of the debalancer, and the second, for the amplification of the third harmonic of the vibrations of vibration exciter frame. The approximate formulas for the amplitudes and initial phases of steady vibrations are obtained. The amplitude-frequency and phase-frequency characteristics are presented.

1/1

USSR

UDC 621.396.4:621.391.8

BYKHOVSKIY, M.A., DMITRIYEV, V.P.

"Noise Immunity Of Discrete Transmission In Multichannel Systems With Frequency Multiplexing And FM"

Elektrosvyaz', No 9, Sept 1972, pp 38-45

Abstract: The noise immunity of the transmission of discrete data in multichannel frequency multiplexing-FM systems is studied, taking account of both components of the noise (Gaussian and pulse) at the output of the FM demodulator. Three forms of FM demodulators are considered: the ordinary frequency discriminator and two types of tracking (system of phase frequency trim) demodulators. The results of the paper make it possible to determine the effect on the probability of error of the method of demodulation of the FM signal, the number of channels in the system, the frequency deviation index, and the duration of the telegraphic samples transmitted on one channel. An estimate is given of the potential noise immunity of signal reception in the multichannel communication systems considered. The range of applicability is determined of methods used in other works for calculating the probability of error. 6 ill. 12 ref. Received by editors, 29 March 1971.

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USSR

UDC 621.396.621.5

[redacted], M.A., RABINOVICH, V.S. [Members, Scientific-Technical Society Of Radio Engineering, Electronics, And Communications imeni A.S. Popov]

"Concerning Noise Immunity Of Noncoherent Receiver Of Composite Signals With Non-Orthogonal Components"

Radiotekhnika, Vol 27, No 6, June 1972, pp 16-21

Abstract: With the aid of a Chernov estimate for noncoherent communication systems of "RADA" and "RAKE" types, the noise immunity and the energy losses caused by the non-orthogonal separate components of composite signals are determined. It is shown that with specified values of R, r, and ρ for the system considered (unlike a coherent system), the noise immunity worsens with an increase of the number of components of the composite signals. 3 fig. 9 ref. Received 8 March 1970; after further improvement, 8 July 1971.

1/1

USSR UDC 621.391.833

BYKHOVSKIY, M. A., Active Member of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"Methods of Estimating the Probability of Erroneous Reception in Digital Message Transmission Theory. Part II. Systems with Multiposition Signals"

Moscow, Radiotekhnika, Vol 27, No 1, 1972, pp 14-19

Abstract: Simple, exact estimates of the error probability were obtained for various communication systems by means of which it is possible to calculate the noiseproofness of these systems quickly without the use of a computer. The developed methods of estimating P_{error} for M-position communication systems can be used in a number of other cases, in particular, for estimating P_{error} in various spaced reception systems with autoselection and in reception systems with the Wagner code. The procedures for estimating the integrals defining P_{error} based on approximations of the integral expressions were used in this paper just as in part I [M. A. Bykhovskiy, Radiotekhnika, Vol 26, No 12, 1971]. Methods based on the corresponding approximations of the integration region and also the approximate methods developed in information theory can be successful.

The described systems are used for transmitting information of M

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BYKHOVSKIY, M. A., Radiotekhnika, Vol 27, No 1, 1972, pp 14-19

orthogonal signals having identical energy. The multiposition systems considered include: 1) an optimal coherent system for receiving M-position signals; 2) an incoherent system for receiving M-position signals, and 3) incoherent reception of M-position signals in an n-tuple spaced reception system.

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USSR

UDC: 621.391:519.2

ASLYEVA, T. B. and BYKHOVSKIY, M. A.

"Noise Immunity of Polarized Spaced Reception of Multifrequency Signals in the Short-Wave Range"

Tr. NII radio (Transactions of the Scientific Research Institute of Radio) 1970, No. 1, pp 65-76 (from Rzh-Radiotekhnika, No. 3, March 71, Abstract No. 3A45)

Translation: A formula is obtained for determining the noise immunity of a system of polarized space reception of multichannel signals in a multibeam channel with definite characteristics (the number of beams, their relative delay, and the state of polarization). Resume

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USSR

UDC 621.396.626:621.3.019.4

BYKHOVSKIY, M. A.

"Noise Immunity of Spatially Distributed Incoherent Reception of Multi-Frequency Telegraph Signals in a Multi-Line Channel"

Moscow, Elektrosvyaz', No 8, 1970, pp 32-42

Abstract: As a result of the analysis made in this paper, relationships are obtained which permit determining the optimal parameters of the reception system as functions of the channel characteristics -- the number of lines and others. This is done as part of the development of the theory of discrete information transmission in complex channels with frequency-selective and time fading. To improve the noise immunity in such channels, fading caused by the interference of the individual lines must be eliminated, and this can be done either by separating the lines through the time of approach -- the "Rake" system -- through the angle of approach -- the MUSA system -- through the polarization condition, or by a system of separate reception on several frequencies or antennas. This article determines the noise immunity of the combined system of spatial and frequency separation with incoherent processing of the signal. The basic results of the analysis are two equations determining the probability of error in this incoherent system. The author thanks Ye. I. Rozenfel'd.
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1/2 034 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--INVULNERABILITY TO JAMMING OF WIDEBAND RECEPTION SYSTEM WITH SQUARE FOLDING OF FADING BEAMS DURING THEIR INCOMPLETE DIVISION -U-

AUTHOR--BYKHOVSKIY, M.A.

B

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA, NO 1, 1970, PP 30-39

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION

TOPIC TAGS--COMMUNICATION JAMMING, INTERFERENCE IMMUNITY, WIDEBAND COMMUNICATION, WIDEBAND TRANSMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1358 STEP NO--UR/0108/70/000/001/0030/0039

CIRC ACCESSION NO--AP0123316

UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0123316
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORMULAS ARE DERIVED DETERMINING THE ERROR PROBABILITY IN A RECEPTION SYSTEM WITH SQUARE BEAM FOLDING WHERE THE SHAPE OF THE INFORMATION SIGNALS USED FOR TRANSMISSION IS RANDOM SO THAT TOTAL DIVISION OF BEAMS IS IMPOSSIBLE. THE OBTAINED RESULTS MAKE IT POSSIBLE TO SELECT SIGNALS VALIDLY FOR COMMUNICATION SYSTEMS WITH BEAM DIVISION. ORIGINAL ARTICLE: TWO ILLUSTRATIONS AND 17 BIBLIOGRAPHIC ENTRIES.

UNCLASSIFIED

USSR UDC: 621.378.325

BYKOVSKIY, N. Ye., KAN, V., KRYUKOV, P. G., MATVEYETS, Yu. A., NI, K. L., SENATSKIY, Yu. V., and CHEKALIN, S. V.

"Increasing the Energy Ratio of Ultrashort Laser Pulses to Noise"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 68-70

Abstract: The purpose of this paper is to investigate the contrast, i.e., the ratio of the basic pulse energy to the background noise radiation energy, of a laser generating ultrashort pulses. The laser considered uses neodymium glass. In real lasers, the limiting contrast is reached not because of the nonlinear losses in the interaction of the radiation with the optical material of the laser equipment, as some researchers insist, but for other reasons. These losses weaken the most intense of the pulses, and consequently reduce the contrast. This brief communication demonstrates how these losses can be reduced in exchange for a reduction in the energy density of the resonator. The theory behind this procedure is presented, and the schematic of an amplifier for the laser in a stable two-component medium is reproduced. Estimates, made from oscillograms, indicated that the contrast was at least doubled by this device.
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USSR

UDC 577.3

BYKHOVSKIY, V. K., Institute of Problems of Control (Automation and Remote Control), Academy of Sciences USSR, Moscow

"The Metastability of the Conformational State of the Hydrogen Bond Lattice and the Conformational Memory of Natural Biological Macromolecules"

Moscow, Biofizika, Vol 18, No 3, May-Jun 73, pp 573-575

Abstract: It is assumed that natural subunits (macromolecules) are "created" in a metastable (for hydrogen bonds) state. In this case the conformation of the heavy lattice does not unambiguously determine the conformation of the lattice of hydrogen bonds -- a degeneration of the conformational level occurs. The "discharge" of metastable hydrogen atoms is possible under the control of perturbations on the part of the remaining subunits or external sources; as a result of the discharge there are controllable changes in the complementary relations (which are due to the arrangement of hydrogen atoms, microscopically caused by anisotropy). It is assumed that the metastable nature of natural subunits (macromolecules) and the possibility of electronically controlled change in their conformation (stopping degeneration) form the basis of the macromolecules' individual memory. The content of this memory is controlled by the conformation of the heavy lattice (the "genetic"

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BYKHOVSKIY, V. K., Biofizika, Vol 18, No 3, May/Jun 73, pp 573-575

contribution to memory) and the "history" of all perturbances affecting it, considering their order in time (the "adaptational" contribution to memory). Thus a single carrier of memory and a single change mechanism are proposed.

2/2

USSR

UDC 616.988.43-022.6

BYCHKOVSKIY, V. N., Chair of Children's Infectious Diseases, Crimean Medical Institute, Simferopol'

"Infection with Foot-and-Mouth Disease Brought About by a Vaccine Strain of the Virus"

Kiev, Vrachebnoye Delo, No 8, Aug 72, pp 150-151

Abstract: At a sovkhoz in Crimean Oblast', prophylactic immunization of cattle was carried out with live attenuated foot-and-mouth vaccine of type A-22, series 29, prepared by the Sumy Biological Plant. One of the cows became sick after the immunization. The veterinary technician who examined the cow transmitted through carelessness the infection to three of her children. Two of the children (aged 1.5 and 5 yrs, respectively) developed foot-and-mouth disease in an acute form, while a third child (12 yrs old) and the mother were infected with the disease in a mild, atypical form. All patients recovered after treatment. Because outbreaks of epizootic foot-and-mouth disease had not occured at the sovkhoz, one must assume that the infections were caused by the vaccine strain.

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Biochemistry

USSR UDC 577.16+663.0

BUKIN, V. N., Corresponding Member of the Academy of Sciences USSR, and
BYKHOVSKIY, V. YA., Candidate of Biological Sciences

"Microbiological Synthesis of Vitamins"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. I. Mendeleyev, Vol 17, No 5, 1972, pp 521-526

Abstract: The article considers work done in the USSR and abroad in the biosynthesis of vitamins with microorganisms, dealing mainly with the biosynthesis of vitamin B_{12}, riboflavin, β-carotene and ergosterol. The principal producers of these compounds are listed, as well as the highest yields that the literature describes as having been obtained with them. There are now several industrial shops in operation in the Soviet Union in the Glavmikrobioprom [Main Administration of the Microbiological Industry] system for the production of vitamin B_{12} feed concentrate from acetone-butyl and molasses alcohol stillage, and there is a semicommercial plant turning out β carotene by the microbiological method. Poland plans a β-carotene shop, and there are reports that Pfizer Company plans to produce β-carotene by fermentation in Brazil.

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USSR

BUKIN, V. N. and BYKHOVSKIY, V. YA., Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. I. Mendeleyev, Vol 17, No 5, 1972, pp 521-526

The article also gives data on the biosynthesis of vitamin B_6, biotin derivatives, coenzyme A, coenzyme Q, cytochrome c and ascorbic acid. Prospects are promising for the development of microbiological methods for the production of coenzyme forms of vitamins -- B_{12} coenzyme, FAD, NAD and coenzyme A.

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1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--BIOSYNTHESIS OF VITAMIN B SUB12 AND PORPHYRINS BY THERMOPHILIC METHANE FORMING BACTERIA -U-

AUTHOR-(04)-BYKHOVSKIY, V.YA., ZAYTSEVA, N.I., PANTSKHAVA, YE.S., BUKIN, V.N.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 221-3

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOSYNTHESIS, VITAMIN B COMPLEX, METHANE, BACTERIA, ENZYME ACTIVITY, PORPHYRIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1670 STEP NO--UR/0020/70/191/001/0221/0223

CIRC ACCESSION NO--AT0133575
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0133575

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXOGENOUS DELTA-AMINOLEVULINIC ACID (ALA) WAS REQUIRED FOR SYNTHESIS OF PORPHYRINS AND STIMULATED VITAMIN B SUB12 SYNTHESIS IN METHANOBACILLUS KUZNECEOVII CULTURES. TOTAL SYNTHESIS OF VITAMIN B SUB12 AND PORPHYRINS FROM ALA SEEMS TO INVOLVE FORMATION OF PORPHOBILINOGEN DURING ALA-DEHYDRATASE ACTION. THIS ENZYME WAS PRESENT IN M. KUZNECEOVII ACELLULAR EXTS., AND THE ACTIVITY WAS NOT AFFECTED BY ADDN. OF VITAMIN B SUB12 OR HEMIN IN VITRO. ALA-DEHYDRATASE ACTIVITY WAS INCREASED BY ZN AND ESP. BY CO PRIME2 POSITIVE AND WAS INHIBITED BY CHELATING AGENTS. INHIBITION DECREASED IN THE PRESENCE OF METALLIC IONS. FACILITY: INST. BIOKHIM. IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--REGULATION OF THE BIOSYNTHESIS OF VITAMIN B SUB12 AND PORPHYRINS IN PROPIONIBACTERIUM SHERMANII -U-

AUTHOR-(03)-ZAYTSEVA, N.I., BYKHOVSKIY, V.YA., BUKIN, V.N.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1476-9

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOSYNTHESIS, VITAMIN, PORPHYRIN, BACTERIA, ZINC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0888 STEP NO--UR/0020/70/190/006/1476/1479

CIRC ACCESSION NO--AT0129957

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0129957

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DELTA AMINOLEVULINIC ACID DEHYDRATASE (I) ACTIVITY OF P. SHERMANII ACELLULAR EXTS. OBTAINED FROM CELLS CULTIVATED IN HEMIN WAS SIGNIFICANTLY LOWER THAN THE ACTIVITY IN CONTROL CELLS, BUT THE ACTIVITY OF EXTS. FROM CELLS GROWN IN THE PRESENCE OF VITAMIN B SUB12 WAS THE SAME AS IN THE CONTROLS. TREATMENT OF THE PARENT CELLS WITH ZN OR CO SALTS INCREASED I ACTIVITY. MN, MG, FE, AND NI WERE INEFFECTIVE. EDTA AND 8,HYDROXYQUINOLINE REDUCED I ACTIVITY IN CELL FREE EXTS., SPECIFICALLY DUE TO INHIBITION OF ZN PRIME2POSITIVE. HEMIN SEEMED TO INHIBIT FORMATION OF BOTH I AND PORPHOBILINOGEN. THE REACTIORI OF VITAMIN B SUB12 SUGGESTS THAT ITS ACTION IS DIRECTED TOWARD ENZYMIC SYSTEMS SPECIFIC FOR ITS OWN SYNTHESIS. I SEEMS TO BE ZN ACTIVATED OR ZN CONTG. FACILITY: INST. BIOKHIM. IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr. AP0041496 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR0411

B

87451f Effect of S-methylmethionine (vitamin U) on vitamin B_{12} biosynthesis by Propionibacterium shermanii. Bykhovskii, V. Ya.; Zaitseva, N. I.; Khuchua, G. N. (A. N. Bakh Inst. Biochem., Moscow, USSR). *Prikl. Biokhim. Mikrobiol.* 1970, 6(1), 75–8 (Russ). S-Methylmethionine (vitamin U) stimulated the formation of vitamin B_{12} and simultaneously inhibited the synthesis of porphyrins by *P. shermanii* under each physiol. state studied, suggesting that this compd. is an active Me group donor. Vitamin B_{12} synthesis increased under the action of S-methylmethionine to about an equal extent in both developing cultures and in suspensions of resting propionic acid bacteria cells. δ-Aminolevulinic acid (3 mg/100 ml medium) further stimulated vitamin B_{12} formation only in the resting cell suspensions. BJJR

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REEL/FRAME
19751364

AA0040675 B Bykhovskiy, Yu. A.
UR 0482

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

241660 TRANSPORTATION OF FINELY DIVIDED CHARGE to a smelting furnace, for example by means of compressed air is characterized in that, in order to reduce consumption of compressed air (or other gas) and to facilitate operation of the furnace, the charge is transported directly into the burner by means of compressed oxygen in the amount required only for this purpose. The rate of oxygen issuing from an ejector is controlled. The proposed method differs from the pneumatic transportation system in that it does not include a dust separating system and intermediate bankers for holding the charge and the gas tube terminates at the melting unit, passing directly into the charge/oxygen vertical or horizontal burners.
15.1.68 as 1211823/22-1. L.M.BOCHKAREV et al(26.8.69)
Bul 14/18.4.69. Class 40a. Int.Cl.C 22b.

18

19750277

AA0040675

AUTHORS: Bochkarev, L. M.; Bykhovskiy, Yu. A.; Makarov, D. M.; Paretskiy, V. M.; and Sheynkman, L. K.

19750278

1/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--HEATING 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.

B

COUNTRY OF INFO--USSR

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

DATE PUBLISHED--------70

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/FRAME--3004/1918 STEP NO--UR/0136/70/043/005/0018/0020

CIRC ACCESSION NO--AP0132180

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0132180

ABSTRACT/EXTRACT--(U) GP-0- 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 M PRIME3 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

1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SYNERGISM IN A NITRIC ACID URANYL NITRATE BIS2,ETHYLHEXYL PHOSPHATE TRIBUTYL PHOSPHATE SYSTEM -U-

AUTHOR--BYKHOVTSOV, V.L.

B

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(2), 412-13

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITRIC ACID, URANYL NITRATE, ORGANIC PHOSPATE, URANIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1463 STEP NO--UR/0186/70/012/002/0412/0413

CIRC ACCESSION NO--AP0135134

UNCLASSIFIED

2/2 017 UNCLASSIFIED

CIRC ACCESSION NO--AP0135134 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE SYNERGISM IN THE SYSTEM HNO SUB3 UO SUB2 (NO SUB3) SUB2 BIS(2,ETHYLHEXYL PHOSPHATE (I) BU SUB3 PO SUB4 ON THE DETREE OF SATN. OF THE ORG. PHASE BY U AND ON THE HNO SUB3 CONCN. IN THE AQ. PHASE WAS INVESTIGATED. THE EXPTS. WERE AT 20 PLUS OR MINUS 2DEGREES WITH EQUAL VOLS. OF ORG. AND AQ. PHASES, USING 0.1 MU KEROSINE SOLNS. OF THE EXTG. AGENTS (I, BU SUB3 PO SUB4, AND MIXTS. OF I PLUS BU SUB3 PO SUB4). UNLIKE THE SYSTEM H SUB2 SO SO84 UO SUB2 SO SUB4 I BU SUB3 PO SUB4, WHERE SYNERGISM WAS OBSD. ONLY FOR CONCNS. OESS THAN OR EQUAL 0.25 MOLE U PER L. AND WAS INDEPENDENT OF H SUB2 SO SUBR CONCN., THE SYNERGISM IN THE SYSTEM HNO SUB3 UO SUB2 (NO SUB3), SUB2 I BU SUB3 PO SUB4 WAS FOUND IN THE WHOLE INTERVAL OF U SATN. OF THE ORG. PHASE AND FOR ALL STUDIED CONCNS. OF HNO SUB3 (LESS THAN OR EQUAL TO 10 MU). THE SYNERGISM DEPENCED ON THE HNO SUB3 CONCN. AND WAS MAX. AT 3MU HNO SUB3.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--EXTRACTION OF VANADIUM,V, BY A INDUSTRIAL MIXTURE OF TRIALKYPHOSPHINE OXIDES -U-

AUTHOR-(02)-BYKHOVTSOV, V.L., MELIKHOVA, G.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(5), 954-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--SOLVENT EXTRACTION, VANADIUM, KEROSENE, ORGANIC OXIDE, ORGANIC PHOSPHORUS COMPOUND, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0950 STEP NO--UR/0080/70/043/005/0954/0959

CIRC ACCESSION NO--AP0131535

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0131535

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN 0.2 M TRIALKYLPHOSPHINE OXIDE (I), V NITRATE IS EXTD. AT PH 1-2.5. WITH INCREASE OF V CONCN. IN THE SOLN., THE EXTN. MAX. SHIFTS TO THE LOW PH RANGE. NY SATG. 0.2 M I WITH LARGER THAN 0.1 M V (5.1 G-L.) IN THE SYSTEM, A LIQ. 3RD PHASE IS FORMED. IT WAS PROPOSED THAT I EXTS. V FROM NITRATE SOLN. AT THE INDICATED PH RANGE IN THE FORM OF MONOMERIC MOLS. OF METAVANADIC ACID ACCORDING TO THE FOLLOWING REACTIONS: HVO SUB3AQ. PLUS 2TAFO SUBORG. IN EQUILIBRIUM WITH (HVO SUB3 2TAFO) SUBORG, WHERE TAFO IS I. THE RATIO OF THE VOLS. OF ORG. AND AQ. PHASE WAS 1:1 AND THE CONTACT TIME WAS 3 MIN. THE I SOLN. WAS PREPD. IN PURIFIED KEROSINE AND THE TEMP. WAS 10 PLUS OR MINUS 2DEGREES.

UNCLASSIFIED

USSR UDC 612:615

BYKHOVTSOVA, T. L., Far Eastern State University, Vladivostok

"Morphological Changes in Rabbit Blood During Administration of Ginseng and Eleutherococcus Extracts"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 5, Sep/Oct 71, pp 713-717

Abstract: Blood tests were performed on 63 normal and 63 anemic rabbits (40% of blood volume removed through hemorrhage). Animals were given daily oral doses of alcohol extracts of ginseng of eleutherococcus roots or an alcohol solution of the same concentration (controls for 1 month. In normal rabbits, erythrocyte and hemoglobin concentration increased 14-17%, reticulocyte count 20-30%, thrombocyte count about 8%, and leukocyte count 13-17% above the control level in both experimental groups. In anemic rabbits (hemoglobin concentration down to about 60% of the initial level) receiving either extract, recovery began on the 5th posthemorrphagic day and was almost complete on the 15th day, while the control rabbits recovered only toward the end of the experimental period. It is concluded that these extracts promote hemopoiesis in the normal and in the pathological state.

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USSR UDC: 577.1

BYKHOVTSOVA, T. L., Far East State University

"The Effect of Ginseng and Eleutherococcus Root Preparations on Carbohydrate Metabolism"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 70, pp 915-918

Abstract: The Carbohydrate metabolism of healthy rabbits was observed over a period of 30 days during administration of ginseng and eleutherococcus root preparations. Blood from the ear vein was tested before administration and after the 10th, 20th, and 30th days. The amount of sugar, inorganic phosphorus, and lactic acid in the blood, as well as the lactic acid content of the liver and muscular tissue was studied. It was found that the blood sugar and tissue glycogen contents were increased and the inorganic phosphorus content of the blood decreased as a result of administration of the liquid root extracts. Experimental data indicate that the oxidative and synthetic processes of the organism must have been increased.

1/1

1/2 030 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--NEWS -U-

AUTHOR--BYKODUROV, S.

B

COUNTRY OF INFO--USSR

SOURCE--VODNYY TRANSPORT, MAY 12, 1970, P 1, COLS 4-5

DATE PUBLISHED--------70

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

TOPIC TAGS--ADHESIVE, GLASS FIBER, REINFORCED PLASTIC, INDUSTRIAL PRODUCTION, SHIPBUILDING ENGINEERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0093 STEP NO--UR/9028/70/000/000/0001/0001

CIRC ACCESSION NO--AN0113071

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AN0113071

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR REPRUTS THAT THE VEYSK SHIP REPAIRS PLANT HAS BEEN BUILDING GLASS REINFORCED PLASTIC MOTOR BOATS FOR THE FISHING INDUSTRY. ALL THE JOINTS ARE BONDED WITH A SPECIAL ADHESIVE. THE BOAT WEIGHING 1800 KMS IS WATER JET PROPELLED, CARRIES SIX MEN AND CAN DEVELOP SPEEDS UP TO 40 KMS PER HOUR. THE VESSEL HAS A VERY SHALLOW DRAFT. IN ADDITION TO MOTOR BOATS, THE PLANT MANUFACTURES PLEASURE ROW BOATS, CONTAINERS FOR LIFE RAFTS ON SEA GOING VESSELS, AND OTHER EQUIPMENT.

UNCLASSIFIED

USSR

UDC 669.017.1:621.771.8

MEANDROV, L. V., BYKOV, A. A., YAKSHINA, O. K., and ZAYTSEV, V. V.

"Properties of a Three-Layer Strip Produced by Explosion and Packet Rolling"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 160-163

Translation: Results are presented from comparative studies of the quality of bimetal produced by explosive welding and by packet rolling. The strength characteristics of a three-layer strip nickel + steel + nickel, produced by explosive welding, are found to be of the level of properties of a three-layer strip produced by packet rolling. The shear resistance between layers in the explosively welded bimetallic strip is 300-400 Mn/m^2 (30-40 Kg/mm^2). Estimation of the microstructure of the bimetal in the initial state (after explosion) and after hot rolling confirms the good adhesion of the nickel layers to the base layer. 3 figures.

1/1

USSR

UDC 621.771.8

BYKOV, A. A., GOLOVANENKO, S. A., MEANDROV, L. V., and CHUB, V. M.
"The Selection of An Optimal Temperature Mode for Rolling of the Bimetals St3+0Kh17T and St3+Kh25T"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 177-181

Translation: In order to select the optimal temperature interval for rolling and optimal compression mode under industrial conditions, diagrams of second-order recrystallization of 0Kh17T and Kh25T steels are constructed. This was performed using the method of rolling of wedge-shaped specimens. The temperature of the beginning of rolling of the chrome steels should not exceed 1,000°C. When bimetals St3+0Kh17T and St3+Kh25T were rolled under industrial conditions, the temperature of beginning of rolling was increased to 1100°C. By using slight compression and properly selecting the rolling rate, recrystallization in the high-temperature area was suppressed, a low temperature of end of rolling was achieved, and good fine grain was achieved in the clad layer of the finished sheet. 1 figure; 6 biblio. refs.

1/1

USSR

UDC 669.71.053.4.094

TIKHONOV, N. N. YASHUNIN, P. V., BENESLAVSKIY, S. I., and BYKOV, A. B.

"Solubility of Aluminum Hydroxide from Bauxites of Various Mineralogical Types in Alkaline-Aluminate Solutions"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 35-42 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G139)

Translation: The solubility of $Al(OH)_3$ from hydrargillite and bemite bauxites in alkaline-aluminate solutions was studied under conditions close to industrial. The solubility of natural hydrargillite and bemite differs somewhat from the solubility of these minerals obtained under artificial conditions. There is some variation of solubility as a function of the perfection of the crystals within the limits of the same crystalline modification. Approximate values of the calculated modulus are presented for leaching of hydrargillite and bemite bauxites under various conditions. 1 illustration, 4 tables, and 8 bibliographic references.

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USSR

UDC 669.721.053.28

BYKOV, A. D., RAZMYSLOV, V. I., ANDREYEVA, R. M.

"The Nature of Chlorine in Dolomites and Its Influence on the Technology of the Production of Magnesium and its Alloys"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 5-10. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G193 by the authors).

Translation: Using the dolomites of the Pravdinskiy deposit (Irkutsk Oblast) as an example, it is demonstrated that they may contain a slight quantity of Cl (up to 0.14%), bonded with the rock-forming mineral in the complex $Ca_3(Cl, CO_3)_2$. The presence of Cl in dolomites is explained by its assimilation from sea water during the process of dolomite formation. During vacuum thermal reduction of MgO in the 1100-1300° temperature interval, the Cl, in contrast to the F salts, acts as an anticatalyst, significantly decreasing the degree of reduction of Mg, particularly in the relatively low-temperature area (up to 1200°). The Cl goes over to the Mg in quantities depending on the Cl content in the initial raw material and the temperature of reduction. For the samples studied, the content of

USSR

BYKOV, A. D., et al, Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti, 1970, No. 72, pp. 5-10

Cl' anion in dolomite roasted at 1100° reached 0.35%. Removal of the Cl is facilitated by a high-temperature mode (1300° and higher). In evaluating dolomites as a raw material for the production of Mg or its alloys with certain light metals such as Li by the silicothermal method, one must consider the content of Cl along with the ordinary impurities. 2 tables.

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1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--LOW-TEMPERATURE DEHYDRATION OF ALUNITE IN CONCENTRATES -U-

AUTHOR--BYKOV, A.D.

B

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 545

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--HYDRATION, DEHYDRATION, HYDROGEN BONDING, THERMOGRAVIMETRIC ANALYSIS, MINERAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1891 STEP NO--UR/0076/70/044/002/0545/0545

CIRC ACCESSION NO--AP0118853

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0118853
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMOGRAVIMETRY REVEALED NOTICEABLE LOSSES IN WT. IN THE 300-400DEGREE RANGE. WATER LIBERATION (0.85-1.0PERCENT H SUB20) PROCEEDED WITHOUT BREAKING THE H BONDS OF THE MINERAL. APART FROM THE EFFECT AT 450-80DEGREES DESCRIBED IN LITERATURE, ANOTHER DEHYDRATION STAGE AT 700-45DEGREES WAS NOTED, RELATED, PROBABLY, TO OXONIUM LIBERATION DURING HEATING.

UNCLASSIFIED

USSR

UDC 576.852.211.094

MEN'SHIKOV, D. D., DYKHNO, M. M., KOCHEMASOVA, Z. N., BYKOV, A. S., and TYURIN, V. S., Chair of Microbiology, First Moscow Medical Institute imeni I. M. Sechenov

"Ultrastructure of Drug-Sensitive and Drug-Resistant Mycobacterium Tuberculosis"

Moscow, Problemy Tuberkuleza, No 5, 1971, pp 64-68

Abstract: Electron-microscope study was conducted of five M. tuberculosis strains differing in resistance to such drugs as streptomycin, PAS, cycloserine, etc., to determine whether ultrastructural characteristics are related to drug sensitivity. The strains used were the stock strain 1646 and Nos 686, 946, 827, and 551 isolated from tuberculosis patients treated with tuberculostatic agents. While the strains differed from one another in electron density, thickness of the cell wall, presence of extracellular granules, and number of vacuoles, no correlation could be detected between any of these morphological features and sensitivity or resistance to drugs. For example, heavily vacuolated cells were found in both the sensitive strain 686 and in strain 551, which is particularly resistant to PAS and isoniazid.

AN0033566

UR9003

AUTHORS-- KARMISHIN, A., DOCTOR OF TECHNICAL SCIENCES, PROFESSOR, AND BYKOV, D., CANDIDATE OF PHYSICAL-MATHEMATICAL SCIENCES

TITLE-- THE LAWS OF STRENGTH

NEWSPAPER-- IZVESTIYA, MARCH 22, 1970, P 3, COLS 1-4

ABSTRACT-- BYKOV AND KARMISHIN SUPPORT THE NOMINATION OF A. A. IL,YUSHIN, CORRESPONDING MEMBER OF THE ACADEMY OF SCIENCES, FOR THE LENIN PRIZE FOR HIS WORK IN THE FIELD OF PLASTICITY, STRENGTH, AND VISCOELASTICITY. IL,YUSHIN,S WORK HAS MADE IT POSSIBLE TO SOLVE SOME PROBLEMS IN DESIGNING ATOMIC REACTORS, SPACE VEHICLES, AND AIRCRAFT.

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19710083

USSR

UDC 591.104

FINAKOVA, G. V., ROMANOV, G. V. BYKOV, E. G., and PIRUZYAN, L. A., Institute of Chemical Physics, Academy of Sciences, USSR, Moscow

"The Effect of Permanent Magnetic Field Pretreatment on Histochemical Indexes of the Adrenal Cortex of X-ray-Irradiated Animals"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 73, pp 913-916

Abstract: Experimental results are reported on the effect of permanent magnetic field (PMF) and x-ray irradiation on the contents of sudanophilic lipids, keotsteroids, cholesterol and nonspecific esterase activity in the rat's adrenal cortex. Animals pretreated with PMF before irradiation did not show any more pronounced changes of the indexes studied in the first 72 hrs than those treated with x-ray alone. The data suggest that PMF pretreatment of animals prevents development of changes in the content of sudanophilic lipids, double refracting substances, nonspecific esterase activity characteristic of isolated x-ray treatment.

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USSR

UDC 538.245

KORNEV, Yu. V., YURASOV, N. I., and BYKOV, G. P., Moscow, Higher Technical School imeni N. E. Bauman

"On the Role of Magnetic Microstructure for Ferromagnetic Resonance in a Conducting Ferromagnetic Layer. I. Character of the Skin Effect in Ferromagnetic Resonance Without Allowance for Magnetic Structure"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 9, 1970, pp 7-12

Abstract: A study of the properties of a ferromagnetic metal layer in an electromagnetic field yielded the simultaneous solution of Maxwell's equations and the equation of magnetic moment density variation. The latter was chosen in the Landau-Lifshits form with the relaxation term suggested by Hilbert. The usual local relation with homogeneous and isotropic static conduction was used for the conduction current density. The results indicate the anomalous character of the skin effect for the first mode and the presence of anomalous skin-effect features for the second and third modes in the range of fields used in practice. No allowance was made for the influence of the microstructure on the character of the skin effect. An evaluation of the influence of this factor will be given in the second part of the article. A "Minsk-22" digital computer was used for some of the calculations. S. A. Temirbulatov took part in the work.

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1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PREPARATION OF A SINTER CAKE METALLIZED DURING SINTERING -U-

AUTHOR-(02)-BORISKIN, I.K., BYKOV, M.S.

B

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(4), 51-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--IRON ORE, ORE BENEFICATION, SINTERING FURNACE, COKE, GRAIN STRUCTURE, THERMAL STRESS, METAL REDUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0813 STEP NO--UR/0148/70/013/004/0051/0054

CIRC ACCESSION NO--AT0132906

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132906

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENT WORK IS DEVOTED TO THE POORLY STUDIED PROCESS OF PREPN. OF A SINTER METALLIZED DURING SINTERING. THE KORSHUNOVSK MAGNETITE CONC. WAS SINTERED ON A LAB. APP. THE FINES OF KUZNETSK COKE SERVED AS THE FUEL. THE COKE FINES WERE IGNITED BY CHARCOAL, AS WELL AS BY CHIPS SOAKED IN KEROSINE. THE SINTERING WAS STOPPED AT THE 1ST READING OF THE TEMP. OF THE DEPARTING GASES AFTER ITS MAS. VALUE. THE EFFECT OF THE COKE FINES CONTENT IN THE SINTER BATCH ON THE FORMATION OF THE METALLIC FE IN THE SINTER WAS STUDIED. IT WAS DETD. THEREBY THAT WITH A CHANGE OF THIS PARAMETER FROM 10 TO 35PERCENT THE CONTENT OF THE METALLIC FE INCREASES ON THE AV. FROM 1 TO 13PERCENT. THE MAX. CONTENT OF METALLIC FE (21PERCENT) IS OBTAINED IN THE CENTRAL PART OF THE CAKE WITH CONSUMPTION OF COKE FINES OF 35PERCENT. THE CHANGE CONTENT OF RESIDUAL C IN THE SINTER AND IN THE RETURN IS SHOWN. THE MICROSTRUCTURE OF THE SINTER OBTAINED ALSO SUPPORTS THE ABOVE FINDINGS. AT A CONTENT IN THE BATCH OF GREATER THAN 25PERCETN COKE FINES, THE VERTICAL SINTERING RATE AND THE YIELD OF SUITABLE SINTER DECREASE. THIS CAN PROBABLY BE EXPLAINED BY THE FORMATION OF A LARGE AMT. OF LIQ. PHASE IN THE LOWER PORTION OF THE CAKE AND BY THE LOOSE STRUCTURE IN ITS UPPER PART. THE OPTIMUM CHARACTERISTICS ARE OBTAINED FROM A BATCH CONTG. 25PERCENT COKE FINES. THE EFFECT OF O ADDN. INTRODUCED INTO THE BATCH ON THE COMBUSTION OF C WAS ALSO STUDIED, THE SINTERING CONDITIONS BEING THE SAME AS ABOVE. IN ADDN., THE EFFECT OF THERMAL STRESSES ON SINTER STRENGTH WAS DETD.

FACILITY: SIB. MET. INST., NOVOKUZNETSK, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF ASPIRATED AIR ON THE SINTERING PROCESS -U-

AUTHOR-(03)-BYKOV, M.S., STEPANOV, A.I., PYZHOV, V.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(2), 39-42

DATE PUBLISHED-------70

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

TOPIC TAGS--IRON ORE, SINTERING FURNACE, SINTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1395 STEP NO--UR/0148/70/013/002/0039/0042

CIRC ACCESSION NO--AT0120188

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0120188

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINTERING TESTS ON FE ORES WERE TREATED STATISTICALLY. THE EXPTS. WERE PERFORMED IN A PREVIOUSLY DESCRIBED APP. DURING RAREFACTION WHICH CHANGED DURING THE SINTERING PROCESS. THE END OF SINTERING WAS TAKEN AS THE INSTANT OF THE 1ST LOWERING OF THE TEMP. OF THE EXHAUST GASES AFTER ITS MAX. VALUE. FROM THE CHANGE IN THE SP. AMT. OF ASPIRATED AIR, THE SINTERING PROCESS CAN BE SUBDIVIDED INTO 2 PERIODS: DURING THE 1ST PERIOD (FROM THE START OF SINTERING TO THE INSTANT OF A SHARP INCREASE IN THE TEMP. OF THE EXHAUST GASES) IT CHANGES INSIGNIFICANTLY, AND IN THE 2ND PERIOD IT INCREASES SHARPLY. ANY GIVEN MEASURES DIRECTED TOWARD INCREASING THE SP. CONSUMPTION OF AIR IN THE EARLY STAGES OF SINTERING OUGHT TO MAKE FOR AN INCREASE IN THE PRODUCTIVITY OF THE SINTERING APP. FOR MORE CORRECT JUDGMENT RELATIVE TO THE COURSE AND THE TERMINATION OF THE SINTERING PROCESS, OF SIGNIFICANCE IS NOT ONLY THE TEMP. AND THE COMPN. OF THE EXHAUST GASES, BUT ALSO THE NATURE OF THE CHANGE IN THE SP. AMT. OF ASPIRATED AIR IN TIME. FACILITY: SIB. MET. INST., NOVOKUZNETSK, USSR.

UNCLASSIFIED

USSR

B

GVOZDOVER, R. S., LUK'YANOV, A. YE., SPIVAK, G. V., RAU, E. I., BYKOV, N. V.

"Electron Microscopy of Periodic Piezoelectric Fields"

Moscow, Izvestiya Akademii Nauk, Seriya Fizicheskaya, Vol 34, No 7, 1970, pp 1483-1491

Abstract: This article discusses problems in the formation of the image field contrast varying periodically with time, computes the amplitudes of the piezoelectric fields producing the contrast on the screen of a mirror or raster electron microscope, and describes an experimental method for visualizing and measuring these piezoelectric fields. The piezoelectricity in question takes place on the surfaces of crystals under the action of ultrasonics, a phenomenon often investigated by electron microscopes stroboscopically operated. The results of experiments performed on crystals of quartz, lithium niobate -- $LiNbO_3$, and cadmium sulfide (CdS) are given and the ultrasonic delay lines from the quartz and $LiNbO_3$ crystals investigated. Gratitude is expressed to V. Ye. Lyamov for his useful comments on some of the results of the work.

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1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--THE TOPOGRAPHY OF THE TRICUSPID FIBROUS RING IN MAN -U-

AUTHOR--BYKOV, O.S.

B

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 2, PP 31-37
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART, ANATOMY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/1721 STEP NO--UR/0589/70/104/002/0031/0037

CIRC ACCESSION NO--AP0101774
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0101774

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR HAS STUDIED 208 HEART SPECIMENS OF PATIENTS DIED NOT FROM CARDIAC DISEASES AT THE AGE FROM INFANCY TO 80 YEARS OLD. CORRELATION OF THE TRICUSPID FIBROUS RING WITH THE ADJACENT ANATOMICAL STRUCTURES WAS STUDIES BOTH MACROSCOPICALLY AND HISTOTOPOGRAPHICALLY. THE ANANYSIS OF THE OBTAINED DATA HAS DEMONSTRATED THAT THERE IS A CORRELATION BETWEEN LENGTH OF THE HEART AND DISTANCE FROM THE TRICUSPID FIBROUS RING TO THE RIGHT AURICLE BASIS, VENA CAVA OSTIA, CORONARY SINUS OSTIUM, OVAL FOSSA, SUPRAVENTRICULAR CRESE, MAMILLARY MUSCELS APEX. LONG HEARTS ARE CHARACTERIZED BY LONGEST DISTANCES FROM THE FIBROUS RING TO THE AFOREMENTIONED ANATOMICAL STRUCTURES, WHEREAS SHORT HEARTS BY THE LEAST DISTANCES ACCORDINGLY.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CASEHARDENING MOLDS FOR PLASTICS PROCESSING -U-

AUTHOR--BYKOV, P.A.

B

COUNTRY OF INFO--USSR

SOURCE--STANKI INSTRUM. 1970, (1), 45-6

DATE PUBLISHED-------70

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

TOPIC TAGS--COPPER, BRASS, MOLDING MATERIAL, PLASTIC FABRICATION, ZINC, CASE HARDENING, ALUMINUM OXIZE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1259 STEP NO--UR/0121/70/000/001/0045/0046

CIRC ACCESSION NO--AP0116721
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116721

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LIFE OF CU AND BRASS MOLDS USED FOR SHAPING PLASTICS CAN BE LENGTHENED BY ZN CEMENTATION OF THEIR SURFACES BY HEATING THEM IN A MIXT. OF 50PERCENT ZN DUST, 49 AL SUB2 O SUB3 POWDER, AND 1PERCENT NH SUB4 CL AT 380-400DEGREES FOR 3-5 HR.

UNCLASSIFIED

USSR UDC: 681.3.53.085.3

POPECHITELEV, Ye. P., BYKOV, R. Ye., Leningrad "Order of Lenin" Electrical Engineering Institute imeni V. I. Ul'yanov

"A Television Device for Classifying Colored Objects and Images"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 15, Apr 73, Author's Certificate No 374639, Division G, filed 8 Dec 70, published 14 Jul 73, p 113

Translation: This Author's Certificate introduces a television device for classifying colored objects and images. The device contains a black-and-white transmitting camera with a rotating light filter disc, and a vidicon camera which delays the video signal for the time of one half-frame. As a distinguishing feature of the patent, resolution is increased by connecting a first commutator between the black-and-white transmitting camera and the vidicon video signal delay camera, one of the outputs of this commutator being connected to the vidicon while the other is connected to the first inputs of four weighting adders. The commutator input is connected to the output of the black-and-white transmitting camera, while the second inputs of the four weighting adders are tied in pairs and connected through a

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USSR

POPECHITELEV, Ye. P., BYKOV, R. Ye., USSR Author's Certificate No 374639

second commutator to the output of the vidicon video signal delay camera, and the outputs of these adders are connected to corresponding coincidence gates. The signals from the outputs of these coincidence gates are sent through a third commutator to the input of an additional vidicon.

2/2

BYKOV, S. I.

Gas Analysis

ARM/FSTC /HT-23-830-72-2
Joyce

DEPARTMENT OF THE ARMY
U.S. ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER
220 SEVENTH STREET NE.
CHARLOTTESVILLE, VIRGINIA 22901

In Reply Refer to:
FSTC-HT-23-830-72
DIA Task No. T70 23-01

Date: 26 June 1972

TRANSLATION

ENGLISH TITLE: Use of a High-Temperature Fuel Cell in Gas Analysis

FOREIGN TITLE: Ispol'zovaniye vysokotemperaturnogo toplivnogo elementov v analize gazov

AUTHOR: S. I. Bykov, A. A. Popov, A. V. Silakov, L. A. Mikhaylina, G. S. Tyurikov

LANGUAGE: Russian

SOURCE: Zavodskaya laboratoriya No. 12, pp 1448-1451, (1970)

TRANSLATOR: Leo Kanner Assocs.

REQUESTOR: AMXST-GE Mr. Busi

ABSTRACT: Gases may be analyzed in apparatus containing a high-temperature fuel cell. Carbon dioxide, hydrogen, carbon monoxide, and hydrocarbons can be determined under certain conditions.

USSR DIVISION/CRS
Aug 31 3 31 PM '72

DESCRIPTORS: Gas Analyzer
Fuel Cell
Gas Analysis
Polarographic Analyzer
Polarographic Analysis

GRAPHICS NOT REPRODUCIBLE

This translation was accomplished from a xerox manuscript. The graphics were not reproducible. An attempt to obtain the original graphics yielded negative results. Thus, this document was published as is, in order to make it available on a timely basis.

2172-64-8

USSR

UDC: 621.3.083.8:531/768

BYKOV, V. A., VOLKOV, L. N., VOLNYANSKIY, V. N., KISHCHENKOV, O. V., SARINGULYAN, Ye. Kh., FILATOV, V. M.

"A Digital Accelerometer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 31, Nov 71, Author's Certificate No 317977, Division G, filed 26 Feb 70, published 19 Oct 71, p 167

Translation: This Author's Certificate introduces a digital accelerometer which contains a sensing element with moment and position pickups, and an amplifier with its input connected to the position pickup, while the output is connected to the moment pickup through a series circuit comprised of a pulse-duration modulator and a feedback pulse shaper. The device also contains a pulse generator connected through a switch to a counter. As a distinguishing feature of the patent, accuracy is improved by including a comparison unit connected to the amplifier output, and a control unit whose output is connected to the controlling input of the switch. One input of the control unit is connected to the output of the comparison unit, and the other is connected to the modulator output.

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USSR

UDC: 546.212:539.217.1

BYKOV, V. M., and MIKHAYLOV, N. V., Institute of Physical Chemistry, Moscow, Academy of Sciences USSR

"Freezing of Water Adsorbed in Cement Stones"

Moscow, Kolloidnyy Zhurnal, Vol 32, No 3, May-Jun 1970, pp 342-346

Abstract: Phenomena related to the freezing of adsorbed water in cement (concrete) stones are of importance from the standpoint of the durability of these stones as a construction material. By applying dilatometric and calorimetric measurements, the process of freezing of water in cement stones produced by two industrial plants was studied. It was established that on saturation of the pore surface of the stones with water only water that was present because of capillary condensation (approximately 50% of the total) was capable of freezing. Its freezing took place at temperatures above minus 50°. Adsorption-bound (chemadsorbed) H_2O did not freeze even at minus 110°.

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USSR

BYKOV, V. D., KISIN, I. M., and EDELSHTEYN, K. K.

"Conference on the Problem of Clean Water"

Moscow, Vestnik Moskovskogo Universiteta, Seriya 5, Geografiya, No 2, Mar/Apr 71, pp 117-118

Translation: On the 25th and 26th of December 1970, the All-Union Conference on "Scientific Fundamentals for the Control of Processes Affecting the Quality of Water and Water Bodies which are Main Sources of Water Supply" took place at the Department of Geography of MGU [Moscow State University]. The problem of providing the population and the national economy with clean, fresh water becomes at present one of the most urgent problems. Irregularity in the distribution of water resources over the country's territory and, at the same time, the population increase in industrial centers and the sharp increase in industrial production enhancing pollution of the surface waters with public and industrial wastes -- all this requires control of the water resources of the country in a quantitative and qualitative way. The most widespread method of sewage water control is the creation of artificial bodies of water -- water reservoirs. The processes taking place in the reservoirs essentially

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BYKOV, V. D., et al., Vestnik Moskovskogo Universiteta, Seriya 5, Geografiya, No 2, Mar/Apr 71, pp 117-118

modify the physicochemical and biological properties of the waters accumulating in the water body.

Thirty-five reports and communications were presented at the conference, in which more than 100 specialists from 40 organizations of various cities of the country participated. There was an extremely necessary and useful exchange of information on reservoir research which made it possible to present the main trends of scientific work carried out by scientific research institutes, by planning and industrial institutions, and by institutions of higher learning of the country. All reports were received with great interest and actively discussed by the participants of the conference.

Most speakers at the conference were researchers in the field of water bodies: hydrolimnologists, hydrobiologists, hydrochemists. It is particularly worth noting that in most reports predominated the idea that it is impossible to solve the problem of clean water in water bodies without analysis of the processes taking place in their drainage collecting systems, without protection of the water bodies themselves and, still more importantly, without protection of the basins. Particular attention was directed to this problem in the introductory lecture "Scientific Fundamentals of Quality Control of Surface-Waters

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BYKOV, V. D., et al., Vestnik Moskovskogo Universiteta, Seriya 5, Geografiya, No 2, Mar/Apr 71, pp 117-118

Destined for Water Supply", which had been prepared by leading scientists. In this same lecture it was reported that the existing standards of physico-chemical criteria for the evaluation of the water quality are inadequate for guaranteeing the population with high-grade drinking water; the problem of setting up biological criteria was presented, inasmuch as the existing standards of sampling are clearly inadequate. In analyzing the current methods used for calculating water quality, the authors of the report were forced to state that in spite of the fact that methods are available for determining the concentration of pollution in local waters at the spot of sewer discharge, no methods are available for calculating the water quality in a water body as a whole. Consequently, the processes in the interior of the water body of a lake or of a water reservoir have as yet not been sufficiently studied.

The topic of interplay of drainage system and water body served as basis for still another survey report read by Professor L. L. Rossolimo (IG AN SSSR [Institute of Geography, USSR Academy of Sciences]) in which emphasis was placed on the ever increasing eutrophication of lakes and water reservoirs as a result of the annually increasing volume of mineral and organic wastes with the fertilized, agricultural land areas of their drainage systems.

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BYKOV, V. D., et al., Vestnik Moskovskogo Universiteta, Seriya 5, Geografiya, No 2, Mar/Apr 71, pp 117-118

In a report presented by the Krasnovidov Laboratory of Water Reservoir Research of the Department of Geography, Moscow State University, the importance of the internal processes in water bodies for the transformation of fluvial drainage was discussed. The results of the research led to the conclusion that in spite of the sharp drop in the discharge of suspended debris, dissolved and suspended organic matter, emerging after construction of water reservoirs, the water quality in the under waters was for most of the year impaired. Survey reports by Professor Kh. A. Velner (Tallin Polytechnic Institute) and by the senior scientific associate of the State Hydrology Institute V. A. Znamenskii were devoted to a theoretical method of calculating water quality in bodies of water and laboratory-scale modelling of the latter. Problems of calculating the flow of suspended debris, the importance of upper water vegetation in the self-cleansing processes of water bodies, the behavior of organic and biogenic matter in waters, and the development of novel approaches to the evaluation of water quality were discussed in a number of communications.

A resolution was taken at the Conference, which contained important recommendations for all organizations and specialists working on general and partial

USSR

BYKOV, V. D., et al., Vestnik Moskovskogo Universiteta, Seriya 5, Geografiya, No 2, Mar/Apr 71, pp 117-118

problems of guaranteeing a supply of clean fresh water for the population and the national economy.

- END -

CSO: 1841

5/5

ACC NR: AM7004692 (N) Monograph UR/

Bayrashevskiy, Aleksandr Mustafovich; Bykov, Vladimir Ivanovich; Nikitenko, Yuriy Ivanovich; Polozhintsev, Vasiliy Alekseyevich

Radio navigation apparatus (Radionavigatsionnyye pribory) Moscow, Izd-vo "Transport", 66. 0448 p. illus., biblio. 10,000 copies printed. A textbook for radioengineering students at higher marine engineering schools.

TOPIC TAGS: navigation equipment, navigation radar, ship navigation, shipborne-radar, radio beacon, direction finder, omnidirectional antenna, waveguide antenna, marine engineering

PURPOSE AND COVERAGE: This textbook, approved by the Administration of Education of the Ministry of the Merchant Marine, USSR, is intended for radio-engineering faculties in merchant marine schools of higher education. It may also be used by students of other schools and faculties for the study of radio-navigation instruments as well as by navigation personnel of merchant-marine and fishing-industry ships. Such radionavigation instruments as radio-direction finders, radar equipment, and receiver-indicators of pulse and phase radionavigation systems are discussed. Operating principles, construction, and exploitation are analyzed, and examples of the calculation of the elements in the latest systems

Card 1/4 UDC: 621.396.967.72(075.1)

of audio and visual radio-direction finders, the Decca and Loran navigation systems, etc., are also given. Special attention is given to Soviet radar equipment. Information on coast radio equipment, such as beacons and radionavigation transmitters, is also given. The textbook is based on a series of lectures given by the authors at the Department of Radio Engineering of the Leningrad Higher Marine School im. Admiral S. O. Makarov. No personalities are mentioned. There are 33 references, all of which are Soviet.

TABLE OF CONTENTS [abridged]:

ACC NR: AM7004692

Card 3/4

ACC NR: AM7004692

SUB CODE: 09,13 /SUBM DATE:none /ORIG REF: 033

Card 4/4

USSR

B

UDC 621.396.946

FORTUSHENKO, A. D., ASKINAZI, G. B., BYKOV, V. L. et al.

"Fundamentals of Technical Planning of Artificial Satellite Communications Systems"

Osnovy tekhnicheskogo proyektirovaniya sistem svyazi cherez ISZ (cf. English above), Moscow, "Svyaz'", 1970, 331 pp, ill. 1 r. 52 k. (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10A119 K)

Translation: The authors describe the basic properties of satellite communications systems, their role and position among existing forms of communication, consider the organizational and technical principles of constructing systems, problems of system control, problems associated with the motion of artificial satellites in orbit, and frequency bands suitable for radio communications with satellites. Standards for qualitative indices are given and substantiated. A complete method for calculating the power indices of a communications system is given, and a procedure is developed for computing the parameters of high-frequency channels for lines of communication through artificial satellites. The book is intended for specialists in radio communications and may be of interest for teachers and students in radio engineering academies. 157 illustrations, 18 tables, bibliography of 97 titles. Annotation.

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USSR

UDC 621.397.742

TALYZIN, N. V., BYKOV, V. L., KANTOR, L. Ya.

"A Method of Radio Communication and Television Transmission Using Artificial Earth Satellites"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 15, May 71, Author's Certificate No 302840, Division H, filed 7 Apr 69, published 28 Apr 71, p 204

Translation: This Author's Certificate introduces a method for radio communications and television transmission using artificial Earth satellites operating in a common band of frequencies with spatial frequency division of signals. As a distinguishing feature of the patent, the effectiveness of using a stationary orbit is improved by relaying television signals through devices on board the satellite which have maximum emission power, and relaying communications signals through devices on board the satellite which radiate optimum power in the economic sense. Television signals are received by antennas which have the minimum diameter for the selected power, and communications signals are received by antennas with economically optimum dimensions.

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--FREEZING OF WATER SORBED BY CEMENT STONE -U-

AUTHOR-(02)-BYKOV, V.M., MIKHAYLOV, N.V.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 342-346

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FREEZING, WATER, CEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1657 STEP NO--UR/0069/70/032/003/0342/0346

CIRC ACCESSION NO--AP0125279

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125279

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES OF WATER SORBED BY CEMENT STONES MADE FROM DIFFERENT CEMENTS HAVE BEEN STUDIED. SPECIFIC PROPERTIES OF SORBED WATER MANIFEST THEMSELVES IN ITS SORPTION AND FREEZING PROCESSES. ADSORPTION BOUND WATER DOES NOT FREEZE EVEN WHEN COOLED DOWN TO MINUS 110DEGREES. FACILITY: INSTITUT FIZICHESKOY KHIMII AN SSSR, MOSCOW.

UNCLASSIFIED

USSR

UDC:621.039.54

BYKOV, V. N., VAKHTIN, A. G., DMITRIYEV, V. D., KOSTROMIN, L. G., LADYGIN, A. YA. and SHCHERBAK, V. I.

"Radiation Swelling of OKh16N15M3B Steel"

Moscow, Atomnaya Energiya, Vol 36, No 1, Jan 74, pp 24-26

Abstract: Results are presented from electron-microscope studies of radiation porosity in OKh16N15M3B steel bombarded by neutrons in the BR-5 reactor. The specimens used were discs 3.5 mm in diameter and 0.4 mm thick, cut from various sections of fuel element shells following bombardment in the BR-5 reactor to integral fluxes of $4.3 \cdot 10^{22}$ neutrons per square centimeter in the 430-580° C interval. After manufacture, the fuel element shells were annealed at 950° C for 10 minutes in a vacuum. The dependence of swelling on integral dose and temperature of bombardment is constructed. The dependence is exponential in nature, with an exponent of 1.5, which is slightly less than that determined for type 316 steel. The maximum calculated swelling of the steel with a flux of 10^{23} neutrons per square centimeter is 6-7%.

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BYKOV, [redacted]. V. N.

RADIATION STEEL

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JPRS 60973

14 January 1974

UDC: 621.039.531:669.012.8

RADIATION SWELLING OF STEEL OKh18N9T

[Article by V.N. Bykov, A.G. Vakhtin, V.D. Dmitriyev, L.G. Kostromin, A. Ya. Ladygin, V.I. Shcherbak; Moscow, Atomnaya Energiya, Russian, Vol 35, No 4, 1973, submitted 8 January 1973, pp 235-237]

Many works pertaining to the investigation of the radiation strength of austenitic steels after irradiation in fast reactors and ion bombardment in accelerators [1, 2] have been published in recent times. The swelling of types 304 and 316 stainless steel has been subjected to most thorough investigation. Information on the swelling of OKh18N9T steel is limited to data for individual temperatures and integral doses [3]. The results of electron-microscopic analysis of the radiation porosity of OKh18N9T steel are presented in this article.

Experimental Material and Technique

The specimens for electron-microscopic analysis were discs 3.5 mm in diameter and 0.4 mm thick, cut from various fuel element jackets made of OKh18N9T steel and irradiated with integral fluxes of up to $4.4 \cdot 10^{22}$ neutron/cm^2 in the 430-590°C temperature range. The method of thinning of the specimens in a stream of electrolyte (60% H_3PO_4 + 40% H_2SO_4) is described in [4].

Processing of the results was accomplished directly from the negatives with the aid of an instrumental microscope. The measurement error of cavity diameters was 20 Å. The concentration of the pores in the specimen was determined by measuring at least 600 cavities in a specimen with a thickness of 1,500 Å. The summary error of determination of the swelling of the material was 50%, but the scattering of the values from the arithmetic mean value for several measurements of the same specimen did not exceed 20%.

Investigation of the Swelling of OKh18N9T Steel

Electron-microscopic analyses of the specimens revealed pores, homogeneously distributed through the body of the grain, the concentration

USSR

UDC 621.039.531:669.27

BYKOV, V. N., BIRZHEVOY, G. A., ZAKHAROVA, M. I., and SOLOV'YEV, V. A.

"The Nature and Thermal Stability of Radiation-Induced Defects in Single-Crystal Tungsten"

Moscow, Atomnaya Energiya, Vol 33, No 4, Oct 72, pp 809-813

Abstract: The analysis of radiation-induced defects in tungsten shows that the interpretation of the types of defects characteristic for different annealing stages in tungsten is not well-defined. Investigation results are presented on the nature of radiation defects and their stability at temperatures to 2200°C in single-crystal tungsten irradiated at 450-500°C with a dose of $1.4 \cdot 10^{22}$ neutrons/cm^2. This irradiation brings about an increase in electric resistance by 18% at 298°K, by 140% at 77°K, and nearly by 1000 times at 4.2°K; it also results in an accumulation of rhenium in the amount of 0.2 at%. The characteristics of three identified annealing stages of radiation defects and their activation energies are given. The change of the specific electric resistance of single-crystal tungsten during irradiation is associated with the development of small accumulations by hydrogen atoms (20.2%), single vacancies and small accumulations of vacancies (16.5%), complex defects (43.3%), and also with

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520007-3"

USSR

BYKOV, V. N., et al., Atomnaya Energiya, Vol 33, No 4, Oct 72, pp 809-813

the formation of rhenium (20%). The high integral flow of neutrons, the high irradiation temperature [$(0.20-0.21)T_{fusion}$], and the absence of grain boundaries for the discharging of defects lead to an accumulation of basically complex defects, stable up to 1900°C and giving rise to the change of electric resistance. Four figures, three tables, twenty-two bibliographic references.

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B

USSR

UDC: 620.193.5

BYKOV, V. N., RUDENKO, V. A., and GABRIANOVICH, D. V.

"Effect of PbO on the Oxidation of 1Kh13 Steel"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 455-456

Abstract: The well-known effect of the catastrophic oxidation of stainless steel is generally observed when the metal is alloyed with elements whose oxides are of the low-melting type (MoO_3, V_2O_5, PbO) or when its surface is contacting similar oxides or salts. This study concerns the kinetics of oxidation of 1Kh13 steel at 800--1000°C, its structure, and phase composition of the oxide films formed in the presence of lead oxide. The films show areas with a peculiar geometry corresponding to the phase of lead ferrite $Pb \cdot 5Fe_2O_3$. The amount and size of such areas depends on temperature, oxidation time, and amount of lead oxide vapors in the oxidizing atmosphere. The oxide film on 1Kh13 steel oxidized in air at 800°C is composed of spinel $(Fe, Cr)_3O_4$ at 1000°C and a small amount of metal oxide (Me_2O_3). In the presence of PbO the ratio of these phases in the film varies: $Pb \cdot 5Fe_2O_3$ and Me_2O_3 (α-Fe_2O_3)

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BYKOV, V. N., et al, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 455-456

are predominant. In such a manner, lead oxide promotes the formation of phases containing metallic ions of a high valence. Phase α-Fe_2O_3 is classed with n-type semiconductors with disorder in the anion sublattice. In accordance with Hauffe's rule of valence, introducing an element with a lower valence (Pb^{2+}) in the lattice of such an oxide will increase the concentration of anion vacancies and, consequently, the oxidation rate. In the process of oxidation of 1Kh13 steel in a medium containing PbO vapors (or in contact of PbO with the steel's surface), the adsorption rate of PbO from the gaseous phase may exceed the dissolution rate of lead ions in the lattice of the oxide.

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1/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--NEUTRON DIFFRACTION STUDY OF ZIRCONIUM NITRIDE HYDRIDE -U-

AUTHOR-(05)-BYKOV, V.N., GOLOVKIN, V.S., LEVDIK, V.A., KALININ, V.P., MIRON, N.F.

COUNTRY OF INFO--USSR

B

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 376

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--NEUTRON DIFFRACTION, ZIRCONIUM NITRIDE, HYDRIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0899 STEP NO--UR/0070/70/015/002/0376/0376

CIRC ACCESSION NO--AP0116409

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0116409

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ZRN SUB0.36 H SUB0.80 WAS STUDIED BY NEUTRON DIFFRACTION TO DET. THE LOCALIZATION OF N AND H ATOMS AND THE EFFECT OF N ON THE DISTRIBUTION OF H ATOMS IN THE HYDRIDE LATTICE. THE CLOSEST AGREEMENT BETWEEN THE EXPTL. AND CALCD. DATA WAS OBTAINED FOR THE P3AR3M1 MODEL. THE N ATOMS ARE LOCATED ON THE OCTAHEDRONS EVERY OTHER LAYER AND H ATOMS ON ALL TETRAHEDRONS, BUT THE NO. OF H ATOMS IN THE LAYERS CONTG. N ATOMS IS 4 TIMES SMALLER THAN IN THE N FREE LAYERS.

UNCLASSIFIED

USSR

UDC: 533.6.07

BYKOV, V.N. and LAVRENT'EV, M.E.

"Application of Holography Method to Determination of Dispersion in Two-Phase Gas-Liquid Flow"

Moscow, Fiz. Aerodispersn. Sistem. Mezhved. Nauch. Sb. (Physics of Aerodispersion Systems. Interagency Scientific Symposium, 1972, Vyp 7, pp 132-136 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2B 483 by A.V. Frolov)

Translation: Possibility of applying holographic methods to the investigation of gas-liquid flows is examined. It is pointed out that the method of forming holograms in the far diffraction zone (Traungofer holography) is the most promising in this respect. Recording of such holograms is described, experimental results of holographing water droplets moving in the stream of air at 20 m/sec velocity are presented. A ruby laser in quality modulation regime with passive cryptocyanine shutter was used as a light source. The laser generated monopulses of 2×10^{-8} sec duration. The hologram was recorded

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USSR

BYKOV, V. N. and LAVRENT'EV, M. E., Fiz. Aerodispersn. Sistem. Mezhved. Nauch. Sb. 1972, Vyp 7, pp 132-136

on PANKHROM T-18 photographic emulsion. It is pointed out that this method makes it possible to trace particles of 5-10 micromm diameter. 6 references. English resume.

2/2

USSR

UDC: 621.373.029.7

BYKOV, V. P., SAZONOVA, Z. S.

"A Three-Mirror Optical Delay Line"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1953-1956

Abstract: An optical delay line is proposed in the form of a three-mirror resonant cavity in which one of the mirrors is spherical and the two others are flat. This is equivalent to the conventional cavity resonator in which one of the mirrors is flat, and the other is a concave astigmatic surface with principal radii of curvature $R_x = R\cos\gamma$ and $R_y = R/\cos\gamma$, where R is the radius of curvature of the spherical mirror, and γ is the angle of incidence of the beam on the spherical mirror equal to half the angle between the flat mirrors (see figure). Thus astigmatism is easily controllable over a wide range. In addition, the shape of the mirror is strictly defined (spherical) so that the design is amenable to exact computer calculation. The principal characteristics of the proposed optical delay line are analyzed. The radius of curvature of the spherical mirror is selected in such a way that the cavity is close to confocal ($R = 2l$). One of the difficulties of working with the proposed delay line is matching with an external source. The input beam

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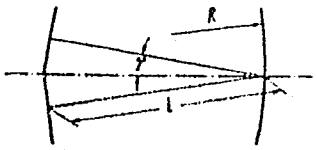
BYKOV, V. P., SAZONOVA, Z. S., Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1953-1956

must have a cross section of the order of 200 μm with a divergence of 10^{-3} radian. Thus the line can be fairly easily matched with gas lasers, but considerable difficulty will be encountered with all other light sources.



2/2

Molecular Physics

USSR

BYKOV, V. P.

"Spontaneous Emission in a Periodic Structure"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 62, No 2, Feb 72, pp 505-513

Abstract: The article considers spontaneous decay of an excited atom located in a periodic structure, using the simple example of an atom located in a one-dimensional periodic structure formed by a twin line, filled with regularly arranged homogeneous dielectric beads. The author begins by studying properties of the twin line and quantizing the electromagnetic fields in it, then considers the interaction of this field with the excited atom by the method of successive approximations. It is shown that decay of the excited state may take one of the two following routes: either (low probability) there is photon emission in the allowed band or (high probability (~ 1)) there is the transition of the excited atom to a special state which the author calls dynamic. This state represents a complex mixture of the excited and unexcited

USSR

BYKOV, V. P., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 62, No 2, Feb 72, pp 505-513

states of an atom and a certain electromagnetic field which is unable to propagate in a periodic structure. The dependence of the dynamic state energy on transition frequency is calculated, as well as the spontaneous emission spectrum.

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USSR

UDC 621.378.325

BYKOV, V. P., VAKHITOV, N. G., NOVOKRESHCHENOV, V. K., SHKUNOV, N. V.

"Effect of Resonator Matching on the Power of Solid-State Lasers"

Moscow, Kvantovaya Elektronika, No 2, 1971, pp 53-56

Abstract: Conditions are determined for matching of the various sections of the optical cavity of a solid-state laser in which the active element is a nonhomogeneous dielectric, and an experimental study is made of the effect which such matching has on emission power. It is shown that greater power is generated in the matched than in the unmatched mode, other things being equal. The authors thank V. G. Dmitriyev for assistance with the work.

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USSR

BYKOV, V. P.; YELOV, V. V. (Moscow)

"Acoustical Vibrations in an Ellipsoidal Cavity"

Moscow, Akusticheskiy Zhurnal; July-September, 1970; pp 372-82

ABSTRACT: Acoustical vibrations in an ellipsoidal cavity are studied. Asymptotic solutions of the Helmholtz equations are obtained which lead, in the given case, to the three-wave equations of Lame. These solutions take into account the symmetry of an ellipsoid and do not require a joining of the solutions for different regions of variation of the independent variable.

In addition, phase conditions discussed by Bykov in an earlier work ("Geometric Optics of Three-Dimensional Oscillations in Open Resonators", from the collection "Electronics of Large Powers", 1965, 4, 66-91) are determined more accurately.

The article includes 84 equations. There are 6 bibliographic references.

1/1

USSR

BYKOV, V. P.

"Producing a Wave Field According to a Beam Pattern"

Leningrad, Zhurnal Tekhnicheskoy Fiziki; October, 1970; pp 2035-42

ABSTRACT: The author proposes a method of producing a wave field according to a well-known beam pattern. In this method the beam pattern is used to define a special curvilinear system of coordinates in which the wave equation is solved anew, in contrast with other methods. Explicit expressions for fields in the case in which the caustic has one branch are derived. It is shown that with such an approach a field on the caustic does not have any discontinuities, and the question of the field's joining on both sides of the caustic is solved automatically. In the given case the fields are determined with an accuracy up to some arbitrary function, the form of which is given by the sources producing the beam pattern. It is shown how this function is determined if the beam is natural for a given resonator.

The article includes 51 equations and 3 figures. There are 9 references.
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USSR

UDC 621.372.413

BYKOV, V. P., Academy of Sciences of the USSR in Moscow

"An Optical Resonator Partially Filled by a Nonuniform Dielectric"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No. 4, April 1970, pp. 705-709

Abstract: The author considers a cylindrical resonator through which waves pass longitudinally, being reflected at one end and returning to the entrance. For a uniform dielectric, the calculations are relatively simple, involving plane wave fronts. The author considers a nonuniform dielectric whose index of refraction increases with distance from the axis of the resonator, causing the waves to diverge. He gives a complete derivation of the wave front form at the end of such a resonator and shows how to calculate the radius of curvature of the end surface in order to produce reflected waves which return to a plane form as they leave the resonator; in this calculation it is assumed that the length of the dielectric is small in comparison with the characteristic dimension of dielectric nonuniformity, where this dimension is expressed as the index of refraction along the axis divided by the change in index of refraction as a function of radius.

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BYKOV, V. P., Radiotekhnika i Elektronika, Vol. 15, No. 4, April 1970, pp. 705-709

Next, the author derives a formula for determining the radius of curvature of a spherical reflector and the distance from the end of the resonator to the spherical reflector in a system of two effective resonators. In this system the wave fronts pass through the dielectric filled resonator, out the curved end and through a vacuum resonator to the reflector, back through the vacuum resonator and back through the dielectric resonator.

The author claims that his formulas can be used to design the optimum resonator surface and mirror, in the sense that they will result in minimum losses and supplementary thinning of the spectrum. For a characteristic dimension of nonuniformity in the dielectric equal to 100 cm and a dielectric resonator length of 10 cm, the resulting radius of curvature for the end of the dielectric resonator is $10\ (1 - 1 \cdot 10^{-4})$ meters; if the distance from the end of the resonator to the reflector is 100 cm, then the radius of curvature for the reflector is $11\ (1 - 2.25 \cdot 10^{-4})$ meters; the author states that these values can be verified experimentally.

The only reference is to an article by the same author in *High Power Electronics*, Nauka Press, No. 5, 1968.

2/2

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--BUBBLING RATE AND GAS CONTENT IN A BUBBLING LAYER -U-

AUTHOR-(02)-IVANOV, M.YE., BYKOV, V.P.

B

COUNTRY OF INFO--USSR

SOURCE--TECR. OSN. KHIM. TEKHNOL. 1970, 4(1), 127-30

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAS ANALYZER, AIR FLOW, TWO PHASE FLOW, WATER, ETHANOL, LABORATORY EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0127 STEP NO--UR/0455/70/004/001/0127/0130

CIRC ACCESSION NO--AP0103807

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