

USSR

UDC 621.365.82

ALEKSANDROV, V. I., MURINA, T. M., ZHEKOV, F. I., and TATARINTSEV, V. M.

"Induced Radiation of  $Tu^{3+}$ ,  $Ho^{3+}$  in Crystals of Zircon Dioxide"

Kratkiye soobshch. po fiz (Brief Communications on Physics), No 2, 1973, pp 17-21 RZh-Fizika, No 9, Sep 73, Abstract No 9D726

Translation: The absorption, luminescence and induced radiation spectra of two kinds of crystals are studied --  $ZrO_2:Tu^{3+}$  (1% by weight),  $ZrO_2:Ho^{3+}$  (1% by weight) -- both with 20%  $Er_2O_3$  by weight. The wavelength of oscillation for  $Ho^{3+}$  was 2.115 microns, for  $Tu^{3+}$  -- 1.896 microns. The lifetime of radiation levels was measured with  $T=77^{\circ}K$  and  $300^{\circ}K$ . It was found that zirconates activated by  $Ho^{3+}$  and  $Tu^{3+}$  have oscillation thresholds intermediate between YAG or  $YAlO_3$  and glasses. Eleven bibliographic citations.

S.A.K.

1/1

USSR

UDC 539.3:534.1

ZHEKOV, K. A.

"Determination of Natural Oscillations of Cantilever Isotropic Plates by the Grid Method"

Moscow, Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 101-108

Abstract: The subject cantilever plate has one straight edge which is built-in. The plate is subdivided into a grid of rectangular elements.

The basic equation of dynamic equilibrium (1) can be put in the form of a matrix equation (2). This equation contains the stiffness matrix. The stiffness coefficients required for this matrix can be calculated by formula (7). Tables show the expressions of these coefficients for different elements of the plate.

Numerical examples show the calculated and experimental natural frequencies and nodal lines for five different modes.

1/1

1/2 009  
UNCLASSIFIED  
TITLE--EXAMINING ELECTRIC TRUCKS BY THE METHOD OF THE CONDITIONAL CYCLE  
-U- PROCESSING DATE--11SEP70  
AUTHOR--ZHEKOV, ZH.  
COUNTRY OF INFO--BULGARIA  
SOURCE--MASHINOSTROENE, 1970, VOL 19, NR 1, PP 7-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ELECTRONICS AND ELECTRICAL ENGR.  
TOPIC TAGS--ELECTRIC EQUIPMENT, DUMP TRUCK, FORKLIFT VEHICLE, DESIGN STANDARD  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1986/1482  
CIRC ACCESSION NO--AP0103313  
STEP NO--BU/9002/70/019/001/0007/0009  
UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AP0103313

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DESCRIBES THE METHOD OF INVESTIGATING ELECTRIC TRUCKS BY WHAT IS KNOWN AS THE CONDITIONAL CYCLE. IT SHOWS THE RESULTS OBTAINED FROM THE INVESTIGATIONS CARRIED OUT ON THREE MACHINES, NAMELY: A HARD CONTROLLED LOW LIFT TRUCK, A UNIVERSAL FORK LIFT TRUCK, AND A HARD CONTROLLED FORK LIFT TRUCK. AN ANALYSIS HAS BEEN OFFERED OF THE OPERATIONAL PROPERTIES OF THE MACHINES INVESTIGATED ON THE BASIS OF GENERALIZED INDICES. THE METHOD IS LIKEWISE APPLICABLE TO PROGNOSTICATION AND EVALUATION OF A NUMBER OF EXPLOITATIONAL PARAMETERS IN DESIGNING NEW TYPES OF ELECTRIC TRUCKS.

UNCLASSIFIED

AN 9044168

2

UR 9012

AUTHORS-- ZHEKULIN, I., PROFESSOR, MIKHAYLOV, V., PROFESSOR, AKSENOV, V., AND LISHIN, I., CANDIDATES OF TECHNICAL SCIENCES

37  
5  
1  
43

TITLE-- IN THE ULTRALONG WAVELENGTH BAND

NEWSPAPER-- PRAVDA, OCTOBER 29, 1969, P 3, COLS 7-8

ABSTRACT-- SOME RESEARCH INTO THE EFFECT OF THE IONOSPHERE ON THE PROPAGATION OF ULTRALONG-WAVELENGTH SIGNALS /15-45 KILOCYCLES/ WAS CARRIED OUT BY "KOSMOS-142" AND "KOSMOS-259" WHICH WERE LAUNCHED FEBRUARY 14, 1967, AND DECEMBER 14, 1968, RESPECTIVELY. THE EXPERIMENTS WERE CARRIED OUT IN REGIONS BETWEEN 50 DEGREES NORTH AND SOUTH OF THE EQUATOR AT ALTITUDES OF 200-1350 KMS. IT WAS DETERMINED THAT THE ATTENUATION OF SIGNALS OF ULTRALONG WAVELENGTH WAS LOW IN THE LOWER IONOSPHERE AT NIGHT TIME, AND LITTLE DEPENDENT UPON FREQUENCY. THE DAY TIME ATTENUATION WAS MUCH MORE APPRECIABLE AND INCREASED WITH FREQUENCY.

1945 0676

12 ab

USSR

UDC 621.791.85

MAKUNIN, M. S., ZHELADNOV, V. I., TYUPOV, G. G., FILIPPOV, A. F., and  
SUNDYREV, I. A., Moscow

"Elimination of Nitrogen and Oxygen From Chromium-Nickel Alloys During Electron  
Beam Smelting"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan/Feb 73, pp 39-43

Abstract: Oxygen was removed from Ni-Cr-Ti alloy during a 5-min-long exposure to an electron beam when the surface temperature of the molten metal was 1600-16200C. The residual concentration of oxygen was 0.001%, regardless of the initial oxygen concentration. Metallographic analysis of the initial and refined metal showed that oxygen was present in this alloy in the form of a complex spinel consisting of Cr<sub>2</sub>O<sub>3</sub>, Al<sub>2</sub>O<sub>3</sub>, and TiO<sub>2</sub> (if Ti is present). The refined metal was purer and the inclusions in it were distributed more uniformly. In order to decrease the concentration of nitrogen in Ni-Cr alloy from 0.099-0.047 to 0.02-0.01%, a 20-minute exposure of molten metal to the electron beam was required. For nickel alloys containing 8 and 20% Cr, the elimination of nitrogen amounted to 30-40%. The addition of 1.5% Ti to nickel alloy containing 8% Cr did not change the elimination kinetics of nitrogen. However, the purification rate of the alloy containing 20% Cr and 2% Ti from nitrogen was

1/2

USSR

MAKUNIN, M. S., et al, Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan/Feb 73, pp 39-43

higher compared with the same alloy without Ti. A sharp decrease in the concentration of oxygen and nitrogen during melting of the electrode and a short exposure of molten metal to the electron beam showed that this method of refining of metals has many advantages. The largest amount of gases were removed from the thin layer of molten metal during the fusion of the electrode and from molten metal drops. The rate of elimination of nitrogen from the molten metal is controlled by the mass transfer processes.

2/2

- 61 -

Instruments and Measurements

USSR

UDC 534.8

ZHELATELEVA, V., KATORGIN, V., NIKOLAYEV, V.

"Optical Device for Measurement of the Parameters of Ultrasonic and Optical Filtering of Radio Signals"

Uch. zap. Ul'yanovsk. gos. pred. in-t (Scientific Annals of Ul'yanovskiy State Pedagogical Institute), 1970, 24, Issue 3, Part 1, pp 274-280 (from RZh-Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3A405)

Translation: X-cut quartz plates 20 mm in diameter with fundamental frequencies of 1, 3, 5, 7, and 10 MHz were used as ultrasonic radiators. 5 illustrations, 6 references. N.B.

1/1



USSR

UDC 621.317.784.029.64:621.398

ZHELDUBAYEV, V. N. and KUKUSH, V. D.

"Permissible Time Lag of a Telemetry Channel for Measuring the Transmitting Power of Super-High Frequency, Operating Under Variable Load Conditions"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb. (Radiotekhnika. Republic Interagency Thematic Scientific-Technical Collection of Articles), 1972, vyp. 21, pp 194-201 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A224)

Translation: A theoretical study is presented on the measurement of transmitting power in output tracts operating under variable load conditions with respect to time. Load characteristics are given for operation under continuous and pulse emission conditions. Formulas are derived for estimating the lag time of a telemetry channel used in measuring transmitting power. Original article: five illustrations. Resume.

1/1

- 65 -

USSR

UDC 669.243

GAL'NBK, A. A., YUZHANINOV, I. A., DEKOPOV, YU. D., and  
ZHELDYBIN, O. I.,

"Examination of the Process of Continuous Converter Blowing of Ferronickel"

Moscow, Tsvetnyye Metally, No 2, Feb 71, pp 18-21

Abstract: The article considers results of the first phase of investigations of continuous converter blowing of ferronickel conducted at the Leningrad Mining Institute in cooperation with the "Gipronikel" Institute. The basic regime characteristics of the process are determined. Conversion to the continuous Bessemer process eliminates many shortcomings of the periodic process carried out in vertical converters. Blowing is carried out in the following manner: after arc firing of the furnace up to 800-1000°C, the bath is set by discharging lump electric-furnace ferronickel. Then the bath is preheated to 1500-1550°C and the arc is disconnected. The electrodes are removed from the furnace, the electrode holes are filled with refractory chokes, 1/2

- 31 -

USSR

GAL'NBEK, A. A., et al., Tsvetnyye Metally, No 2, Feb 71, pp  
18-21

and positioning of the tuyere blast is conducted. Blowing begins  
at a bath temperature of 1350-1450°C. The blast in experiments  
varied from 1.5 to 3.2 m<sup>3</sup>/min at different degrees of carburi-  
zation.

2/2

USSR

UDC 621.396.6-181.5

ZHELEZNIKOVA, G. I., SMIRNOV, V. I.

"Some Problems in the Technology of Thin-Film Circuit Boards for Large-Scale Hybrid Integrated Circuits"

Izv. Leningr. elektrotekh. in-ta (News of the Leningrad Electrical Engineering Institute), 1971, vyp. 92, pp 13-15 (from RZh-Radiotekhnika, No 7, Jul 71, Abstract No 7V280)

Translation: The paper presents the results of development of a circuit board technology which uses gold as the material for the lower conduction layer, fused quartz for the interlayer insulation, and aluminum for the upper layer. The same combination of layers was used for making capacitors. The film structures were made by the method of ion vaporization. The parameters of the process of atomizing the materials and depositing the films are presented. One illustration, one table. N. S.

1/1

USSR

UDC 620.179.16

BABIN, L. V., BELOGORODSKIY, B. A., ZHELEZNOV, I. M., and KHOPOV, V. V.,  
Physicotechnical Institute imeni A. F. Yofe, Academy of Sciences, USSR

"A Multi-element Scanning Device for Acoustic Holography"

Sverdlovsk, Defektoskopiya, No 2, 1972, pp 100-104

Abstract: The multi-element scanning device described here is intended for nondestructive inspection and flaw detection by methods of acoustic holography. A simple electronic device was developed for discrete interference processing of the obtained signals. This is a device of a mixed type, which to a certain degree combines the simplicity and reliability of a mechanical scanning system with the rapid selection of an acoustic field that is inherent in electronic scanning systems. This effect is obtained by means of mechanical scanning by a large number of pickups situated in a line, with simultaneous electronic commutation of the pickups along the line. The described device was tested during operation with commutating pulses 30-50 microseconds in duration; the duty cycle was varied within the limits of 1-5 megahertz; the number of circulation cycles was on the order of 80-100. 3 figures. 1 reference.

1/1

USSR

UDC 622.323(477)6

SKRIPNIK, V. A., ZHELEZNOV, P. A., KLYAROVSKIY, G. V., and KISEL',  
V. A.

"Prospects for Development of Lelyakov Petroleum Deposits With Consideration of Liquid Overflow Between the P<sub>1+2</sub> and P<sub>3</sub> Strata"

Kiev, Neftyanaya i Gazovaya Promyshlennost', No 6, Nov-Dec 70, pp 30-33

Abstract: Three levels of oil deposits are being exploited in Lelyakov area: P<sub>1+2</sub>, P<sub>3</sub>, and K<sub>1</sub>. P<sub>1+2</sub> yields 1.5-30 t/day, P<sub>3</sub> -- 15-210 tons per day, while K<sub>1</sub> is only of secondary importance. Oil overflows from P<sub>3</sub> level to P<sub>1+2</sub> where there is no clay barrier between them, and in wells exploiting both levels. The pressure in P<sub>1+2</sub> layer is about 26-30 kG/cm<sup>2</sup> lower than in P<sub>3</sub>. Lelyakov deposits are among the richest ones in Ukraine. It is proposed to increase the yield to about 200-250 t/day by drilling more wells, and preventing the overflow from P<sub>3</sub> to P<sub>1+2</sub> by building up the pressure in P<sub>1+2</sub> through the input of water. It has been calculated that approximately 3 million m<sup>3</sup> of water per year will be needed to keep the pressure in P<sub>1+2</sub> at 160 kG/cm<sup>2</sup>.

1/1

USSR

UDC: 621.319.4

BUTS, V. P., ZHELEZNOV, M. T., YURINOV, M. M.

"Vacuum Capacitors"

Vekuumnyye kondensatory (cf. English above), Leningrad, "Energiya", 1971, 134 pp, ill. 55 k. (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V377K)

Translation: The use of vacuum as a dielectric makes it possible to produce capacitors which have a better combination of electrical and operational characteristics than air, gas-filled, mica or ceramic capacitors in a certain region of working frequencies with lower weight and overall dimensions. This book systematizes available information on vacuum capacitors. Ye. M.

1/1

- 65 -

USSR

UDC: 51:621:391

Zheleznov, N. A.

"The Properties of Physical Signal Models and Limiting Values of their Basic Parameters"

Tr. Leningr. In-t Aviats. Priborostr. [Leningrad Institute of Aviation Instrument Building], 1972, No 74, pp 3-10 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V378, by the author)

Translation: The basic properties of physical signals which must be retained in a model to avoid development of paradoxes are formulated. The most important are: 1) random functions finite, i.e., of limited length  $T$ ; 2) mean energy limited; 3) predominant portion of energy concentrated in effective frequency band  $\Delta f_e$ ; 4) generally, the process is non-stationary relative to the correlation function. Two main parameters are introduced: 1) the number of base components  $N_0$  having the properties of being finite, non-correlated and carrying the greatest possible share of the energy of the signals; 2) the coefficient of energy concentration  $K_e$  and  $\Delta f_e$ . Two methods of formation of  $N_0$  are studied:

1/2



USSR

UDC: 51:621:391

Zheleznov, N. A., Tr. Leningr. In-t Aviats. Priborostr., 1972, No 74, pp 3-10

sequential and simultaneous, leading to the Karunen-Loev-Pugachev expansion. A basic theorem is proven, yielding the best (or asymptotically best) estimates for  $N_0$  and  $K_e$ . It is shown that  $N_0 \leq [2TAf_e]$ , while  $K_e$ , with simultaneous formation of the base components, may be arbitrarily close to 1 (with sufficiently great  $N_0$ ). It is demonstrated that in this latter case, the information of the initial signals is retained with arbitrary completeness in the base components. The signals for which the limiting values of parameters are reached are discussed. It is noted that the theorem allows us to limit ourselves to a finite-dimension approximation when the Gaussian model is used, eliminating paradoxes in a number of important problems.

2/2

Forming

USSR

UDC 621.771.23:621.771.011

ZHELEZNOV, Yu. D., PAVLOV, I. M., YARGSTORF, P., GRIGORYAN, G. G., and FROINDEL, P., Moscow Institute of Steel and Alloys

"The Effect of Outer Parts on the Edgewise Deformation in the Light-Gauge Sheet-Rolling Process. First Report"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy — Chernaya Metallurgiya, No 11, 1970, pp 81-85

Abstract: The interaction mechanism of outer parts with the deformation source in the process of light-gauge sheet rolling is discussed from the viewpoint of the edgewise interaction of internal longitudinal stresses. The physical interpretation of this interaction is discussed by reference to diagrams showing the alignment process of the transverse difference of thickness of a band and the relation between the irregularity of the edgewise deformation and internal stresses. Experimental data show that with increasing length of the band, the transverse difference of thickness decreases in the beginning and then becomes constant. A function is derived from which a coefficient characterizing the capacity of self-alignment from externally acting parts can be determined. A comparison of experimental and theoretical rolling data is presented.

1/1

USSR

UDC: 51:330.115

SHARAKSHANE, A. S., ZHELEZNOV, Zh. Y.

"On the Process of Developing Mathematical Models of Large Systems"

V sb. Nauch. i prakt. probl. bol'shikh sistem. Sekts. Bol'shiye sistemy. Teoriya, metodol., modelir. (Scientific and Practical Problems of Large Systems--collection of works. Large Systems Section. Theory, Methodology, Modeling), Moscow, "Nauka", 1971, pp 186-191 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V863)

[No abstract]

1/1

USSR

UDC 681.327.02(088.8)

KHAVKIN, V. Ye., and ZHELEZNYAK, A. B.

"Device for Time Selection"

USSR Author's Certificate No 275128, Filed 3/04/69, Published 15/10/70  
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i  
Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5b231P)

Translation: The device for time selection suggested contains a digital winding of a magnetic accumulator connected into a bridge circuit, a write pulse shaper, and an amplifier-shaper. The essence of this invention is the creation of a device for the formation of a pulse for time selection of signals read from the magnetic accumulator, containing two differential read amplifiers, the opposite inputs of which are connected in pairs with two outputs of the digital winding of the magnetic accumulator, while the output of each one is connected to the input of an individual strobing amplifier. The two amplifiers have opposite initial imbalance, the magnitude of which is greater than the amplitude of the leading noise but less than the amplitude of the signal. The outputs of the strobing devices are connected through an OR circuit to the amplifier-shaper of the narrow strobe pulse, which appears at the moment the read signal appears at the output of the strobing amplifier. 1 fig.

1/1

172 028 UNCLASSIFIED PROCESSING DATE--ZUNUVT0  
TITLE--LIQUID EXTRACTION MASS TRANSFER COEFFICIENT CORRELATIONS FOR  
0.28-0.80-CM DIAMETER DROPLETS -U-  
AUTHOR-(02)-LANDAU, A.M., ZHELEZNYAK, A.S.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(5), 1074-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--MASS TRANSFER, SOLVENT EXTRACTION, ACETIC ACID, BENZENE,  
PROPIONIC ACID, ALCOHOL, PHENOL, ANILINE, DROPLET ATOMIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/1956 STEP NO--UR/0080/70/043/005/1074/1079  
CIRC ACCESSION NO--AP0132217  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132217

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. LIQ. EXTN. STUDIES IN 6 SYSTEMS (H SUB2 O-ACOH-C SUB6 H SUB6, H SUB2 O-PROPIONIC ACID-C SUB6 H SUB6, ISOCAMYL ALC.-PHENOL-H SUB2 O, ETOAC-ANILINE-H SUB2 O, H SUB2 O-ACOH-ETUAC, AQ. GLYCEROL SOLNS.-NITROBENZENE) YIELDED AN EQUATION FOR CALCG. MASS TRANSFER COEFFS.  $K_{SUBP}$  FOR SYSTEMS IN WHICH THE DISPERSED PHASE HAS SMALLER THAN 20PERCENT DROPLETS OF 0.20-0.80 CM IN DIAM. WHERE THE CIRCULATION MODEL OF R. KRONIG AND I. BRINK (1950) AND THE TURBULENT MODEL OF A. HANDELG AND T. BARON (1957) DO NOT APPLY. THE EQUATION OBTAINED FOR  $K_{SUBP}$  IS A MODIFICATION OF THAT OF K. AND B. FOR DROPLET DIAMS. (D SUBD) OF 0.3-0.8 CM, THE  $K_{SUBP}$  VALUE IS NEARLY CONST. AND IS GIVEN AS  $K_{SUBP}$  SIMILAR TO  $D_{SUBD}^{PRIME1.7}$ . EXPTL. DETD.  $K_{SUBP}$  VALUES AGREE TO PLUS OR MINUS 9.4PERCENT WITH VALUES CALCD. BY USING  $K_{SUBP}$  EQUALS  $K_{SUBKB}$  (0.5 PLUS 0.7 (D SUBD-0.28) PRIME1.7), WHERE  $K_{SUBKB}$  IS THE MASS TRANSFER COEFF. CALCD. WITH THE K. AND B. EQUATION. FACILITY: VSES. NAUCH.-ISSLED. INST. NEFTEKHIM. PROTSESS., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.385.6

MASHNIKOV, V. V., BEZMENOV, B. A., ZHELEZOVSKIY, E. YE.

"Analysis of a Two-Signal Balanced Traveling-Wave Tube Amplifier"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1042-1046

Abstract: A theoretical and experimental study was made of the conditions of simultaneous amplification of two signals of equal input amplitudes and different frequencies in an O-type traveling wave tube. The predominant amplification of one of the signals is determined by its frequency, amplification coefficient and the steepness of the amplitude characteristic in the signal of single-frequency mode. Depending on the operating conditions of the tube, each of the mentioned parameters can be defined. With equal steepness of the amplitude characteristic and the amplification coefficient, the higher frequency signals will receive predominant amplification. For equal amplification coefficients and small detuning, the signal with greater steepness of the amplitude characteristic will receive predominant amplification. The signal with a high amplification coefficient will receive predominant amplification for equal steepness of the amplitude characteristic and small detuning.

1/1

- 99 -

USSR

UDC 616-003.97(VIBRIO)-057:656.61

ZUBKO, V. I. and ZHELEZNYAK, L. D., Basin Sanitary-Epidemiological Station,  
Black Sea- Azov Aquatic Division of Public Health, Odessa

"A Clinical-Epidemiological Description of the Transportation of Nonagglutinating Vibrios by Seamen Taking Long Cruises"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973,  
pp 72-74

Abstract: Foreign and Soviet seamen arriving at Black Sea ports after long cruises were tested in 1971 for the presence of nonagglutinating vibrios. Vibrios were detected among 0.2% of the individuals analyzed at different intensities throughout the year. The number of carriers followed the annual pattern of incidence of acute intestinal infections and detectability of vibrios in the environment at ports of call. Most carriers had visited ports in Indonesia, Malaysia, India, and Bangladesh at which cholera outbreaks had been reported. While 44.8% of the seamen carried vibrios for 60 days after leaving such ports, they were also detected among seamen 15 to over 60 days after leaving. On the basis of occupation, 75% of the carriers were command staff and medical employees. It is suggested that sea water is an important source of infection. The need for enacting infection control measures at Black Sea ports is apparent.

1/1

- 12 -



USSR

ZHELEZNYAK, M. B., MNATSAKANYAN, A. KH., YAKUBOV, I. T. (Moscow)

"Relaxation and Nonequilibrium Radiation Behind Shock Waves in Air"

Moscow, Mekhanika Zhidkosti i Gaza, No 4, Jul-Aug 70, pp 161-174

Abstract: The article deals with relaxation behind shock waves in air at velocities of 8-12 km/sec. Profiles of the gas parameters behind the front are obtained. The population densities of radiant states of atoms and molecules are computed. The spectral radiation distributions of the relaxation zone are found. In a number of spectrum intervals the radiation intensity passes through a maximum which is in excess of the equilibrium level. A comparison is made with experimental data obtained in shock tubes. The radiant fluxes of heat from the relaxation zone are computed. Estimates are made of the contribution of this radiation to the radiation heating of blunt bodies in a hypersonic streamline flow. In the first two sections of the article are written the equations of molecular and ionization relaxation, the 1/2

USSR

ZHELEZNYAK, M. B., et al, Mekhanika Zhidkosti i Gaza, No 4,  
Jul-Aug 70, pp 161-174

velocity values of the basic processes are presented. In the third section are discussed the initial conditions which are determined by the state of the gas before the front. The results of calculation of the kinetics of relaxation are presented in the fourth section. The fifth and sixth sections deal with calculation of the nonequilibrium zone in atomic lines and molecular bands. A comparison is made with experimental data; this is a necessary stage which permits correction of the theoretical results. In the seventh and eighth sections, nonequilibrium radiant fluxes of heat are computed. The contribution of nonequilibrium radiation to aerodynamic heating is compared with equilibrium radiation and convective heating. 1 table, 7 figures, 41 bibliographic entries.

2/2

USSR

UDC: 621.396.677.001.5

ZHELEZNYAK, M. M., KALACHEV, V. N., KASHIN, V. A.

"On the Theory of Statistical Synthesis of Antenna Arrays"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1807-1815

Abstract: A previous paper (V. A. Kashin, Radiotekhnika i Elektronika, 1971, Vol 16, No 11, p 2082) proposed a method of statistical phase synthesis of antenna arrays with discrete phase regulation. There the method was applied to the simplest case of synthesizing the radiation pattern of a square aperture in one of its principal planes. In this paper the method is extended to synthesis of the volumetric radiation pattern of a flat aperture. The technique of synthesis is considered both in the case of cophasal current distribution and in the case where the initial distribution has undesirable phase distortions leading to a rise in the short-range side lobes of the antenna array. A circular flat aperture is considered.

1/1

- 12 -

USSR

UDC 621.396.677.4.001.5

ZHELEZNYAK, M.M., KASHIN, V.A.

"Statistical Estimation Of The Attainable Level Of Side Lobes In Phase Antenna Arrays With Nonlinear Initial Phase Advance"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1183-1190

Abstract: The minimum level is estimated of lobes of discrete phasing which it is possible to obtain with the use of a nonlinear initial phase advance [nabeg]. The results of numerical calculations are presented. As the object for the calculations an equidistant array was chosen with a circular aperture and the number of elements  $N \approx 3000$ . The results of the calculations agree with the preliminary estimations. 3 fig. 3 ref. Received by editors, 7 May 1971.

1/1

- 6 -

USSR

UDC 669.293.5.784.018.44.621.785

TIKHONOVA, G. S., MEL'NIKOVA, L. V., ZHELEZNYAK, O. N., KONOVALOV, S. V.

"Structure and Mechanical Properties of Alloys of Niobium With Carbon as Functions of Heat Treatment"

Nauchn. Tr. N-i. i Proyechn. In-t Redko met. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1971, Vol. 32, pp. 50-56. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 1737 by the authors).

Translation: The alloy 5VMTs with 0.05% C is heterogeneous in its structure. The mechanical properties of the sheet material at high temperatures depend on the phase composition, resulting from the heat treatment mode. 2 figs; 3 tables; 4 biblio refs.

1/1

1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--PREPARATION OF REFINED SECONDARY ALUMINUM ALLOYS IN A MACHINE  
CONSTRUCTION SHOP -U-  
AUTHOR--(05)-KIMSTACH, G.M., UTKIN, S.YE., ZHELEZNVAKOV, L.R., KORYAKIN,  
G.I., YEFIMOVA, A.YA.  
COUNTRY OF INFO--USSR  
SOURCE--LETEINGE PROIZVOD. 1970, (1), 10-11  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--ALUMINUM ALLOY, SECONDARY METAL, MAGNETIC SEPARATION, METAL  
REFINING, TECHNICAL STANDARD/(U)AL4 ALUMINUM ALLOY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1995/1380 STEP NO--UR/0128/70/000/001/0010/0011  
CIRC ACCESSION NO--AP0116829  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116829

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE ALLOYS WERE PREPD, FROM AL TURNINGS (GRADE AL4) IN 2 STAGES: PRELIMINARY TREATMENT AND REMELTING. THE PRELIMINARY TREATMENT CONSISTED IN SEPN. FROM DIRT ON SCREENS, DRYING IN DRUMS AT 300-50DEGREES, AND MAGNETIC SEPN. FROM IRON IMPURITIES. THEN THE TURNINGS WERE REMELTED IN AN INDUCTION CRUCIBLE FURNACE. AT 740DEGREES, 1.5PERCENT FLUX (KCL 47, NACL 30, AND NA SUB3 AIF SUB6 23WT.PERCENT) WAS ADDED, AFTER MELTING OF WHICH C SUB2 CL SUB6 WAS ADDED (IN 0.1PERCENT AMTS. FOR A TOTAL AMT. 0.7-0.8PERCENT). BEFORE TAPPING LIQ. FLUX (KCL 47.5, NACL 47.5, AND NA SUB3 AIF SUB6 5 WT.PERCENT) IN THE AMT. 2.5PERCENT OF THE METAL WAS ADDED INTO THE LADLE. THE RESULTING MIXING DURING POURING RESULTED IN EFFICIENT REFINING FROM IMPURITIES AND GASES, SO THAT THE RESULTING METAL CORRESPONDED TO GUST STDS. FOR THE ORIGINAL AL4 METAL AND CONTAINED GASES 0.10-0.12 CM PRIME3-100G WITH COMPLETELY PORE FREE TEXTURE. AUTOMOBILE CYLINDER BLOCKS CAST WITH THE ADDN. OF 20PERCENT OF THIS SECONDARY METAL WERE OF THE SAME QUALITY AS THOSE CAST FROM 100PERCENT PRIMARY ALLOY AL4.

UNCLASSIFIED

1/2 038 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ON THE THEORY OF TYPE III SOLAR RADIO EMISSION BURSTS -U-  
AUTHOR--(02)-ZHELEZNYAKOV, V.V., ZAYTSEV, V.V.  
COUNTRY OF INFO--USSR 2  
SOURCE--MOSCOW, ASTRONOMICHESKIY ZHURNAL, VOL 47, NO 2, 1970, PP 308-321  
DATE PUBLISHED-----70  
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, PHYSICS  
TOPIC TAGS--SOLAR RADIO EMISSION, SOLAR RADIATION BURST, PLASMA WAVE,  
ELECTROMAGNETIC WAVE, RALEIGH SCATTERING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1397 STEP NO--UR/0033/70/047/002/0308/0321  
CIRC ACCESSION NO--AP0125043  
UNCLASSIFIED



2/2 038

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125043

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS IS THE SECOND PART OF THIS STUDY OF TYPE III SOLAR RADIO BURSTS (PART I: ASTRON. ZH., 47, 60, 1970). THE PAPER GIVES AN ANALYSIS OF THE EFFECTS OF CONVERSION OF THE ENERGY OF PLASMA WAVES GENERATED BY A FLUX OF FAST ELECTRONS TO THE RADIO EMISSION OF THE FUNDAMENTAL TONE AND SECOND HARMONIC OF TYPE III BURSTS. EMISSION OF THE FUNDAMENTAL TONE IN TYPE III SOURCES IS CREATED BY SPONTANEOUS (RAYLEIGH) SCATTERING OF PLASMA WAVES ON THERMAL IONS OF THE CORONA. THE NONLINEAR CONVERSION OF PLASMA WAVES INTO ELECTROMAGNETIC WAVES AT THE FREQUENCY OF THE FUNDAMENTAL TONE IS INSIGNIFICANT FOR TYPICAL TYPE III BURSTS. EMISSION OF THE SECOND HARMONIC IS CAUSED BY THE COMBINATION SCATTERING OF EXCITED PLASMA WAVES ON FLUCTUATIONS OF THE TYPE OF PLASMA WAVES WHOSE LEVEL IS CONSIDERABLY ENHANCED IN COMPARISON WITH THERMAL WAVES. THIS INCREASE IS CAUSED BY THE RAYLEIGH SCATTERING OF EXCITED PLASMA WAVES. ESTIMATES OF THE CONCENTRATION OF FAST ELECTRONS IN FLUXES NECESSARY FOR EXPLAINING THE OBSERVED INTENSITY OF TYPE III BURSTS (ABOUT 1-10 ELECTRONS TIMES CM PRIME NEGATIVE3) SATISFACTORILY AGREE WITH THE RESULTS OF ROCKET MEASUREMENTS OF THE DENSITY OF HIGH ENERGY ELECTRONS IN INTERPLANETARY SPACE ARISING DURING SOLAR FLARES. THE AUTHORS DISCUSS THE POSSIBILITY OF EXPERIMENTAL CHECKING OF THE DEVELOPED THEORY. THEY ESTIMATE THE MINIMUM CONCENTRATION OF PARTICLES IN ION FLUXES IN SUBS PRIMEMIN IS SIMILAR OR EQUAL TO 200 IONS TIMES CM PRIME NEGATIVE3) NECESSARY FOR EXCITING PLASMA WAVES IN THE CORONA, SHOWING THE LOW EFFICIENCY OF IONS IN GENERATING TYPE III BURSTS. FACILITY: RADIO PHYSICS INSTITUTE AT GOR'KIY UNIVERSITY.

UNCLASSIFIED

Acc. Nr.: AP0042575

Z

Ref. Code: ZLR0033

JPRS 50162

Theory of Type-III Solar Radio Bursts

(Abstract: "On the Theory of Bursts of Type-III Radio Emission," by V. V. Zheleznyakov and V. V. Zaytsev, Radio Physics Institute at Gor'kiy University, Moscow, Astronomicheskii Zhurnal, Vol 47, No 1, 1970, pp 60-75)

A study was made of the influence of nonlinear effects on the dynamics of development of beam instability under conditions typical for sources of type-III radio emission. The authors demonstrate that it is necessary to take into account the quasilinear relaxation of the distribution function for fast electrons, whose deformation time is at least not greater than the characteristic time of development of the most effective nonlinear process related to induced scattering of beam-excited plasma waves on coronal thermal ions. For this reason the stabilization of beam instability is unimportant. The authors clarify the role of collisions and inhomogeneity of the leading edge of the stream in the restoration of beam instability after quasilinear relaxation. The article includes computations of the energy of plasma waves generated by a stream of fast electrons and the conditions are determined under which it is possible to neglect pumping of plasma waves in the spectrum due to induced scattering. Thus, this article examines the nature of the development of beam instability in applica-

1  
2

Reel/Frame  
19760559

12

AP0042575

tion to type-III bursts and formulas are derived for determining the energy of plasma oscillations excited by an electron beam in the corona. Part II will be a study of the process of conversion of plasma waves into radio emission. This will make it possible to estimate the electron concentration in the stream necessary for generating type-III radio emission.

19760560

1/2 040 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--STATISTICAL TREATMENT OF RESULTS OF SOME RADIOBIOLOGICAL  
EXPERIMENTS USING A COMPUTER -U-  
AUTHOR-(03)-ZHELEZNYAKOVA, N.YU., ZAKHAROV, I.A., ILYUSHIN, S.A.  
COUNTRY OF INFO--USSR 2  
SOURCE--RADIOBIOLOGIYA 1970, 10(1), 153  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--CHLORELLA, RADIATION DOSAGE, UV RADIATION, RADIOBIOLOGY,  
COMPUTER APPLICATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1998/0465 STEP NO--UR/0205/70/010/001/0153/0153  
CIRC ACCESSION NO--AP0121139  
UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121139

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

ABSTRACT. STATISTICAL TREATMENT OF THE RESULTS OF RADIOBIOL. EXPTS., USING A COMPUTER FOR THE CALCN. OF THE DOSE EFFECT PARAMETERS IS DISCUSSED. THE SURVIVAL RATE OF CHLORELLA CELLS AFTER TREATMENT WITH VARIOUS DOSES OF UV RAYS IS GIVEN IN AN EXAMPLE. FACILITY: FIZ.-TEKH. INST. IM. IOFFE, Leningrad, USSR.

UNCLASSIFIED

Water Treatment

USSR

UDC 542.3:532.782:541.123.21:547.26

ZHELEZNYI, B. V., Institute of Physical Chemistry, USSR Academy of Sciences

"Density of Supercooled Water-Alcohol Solutions"

Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72, pp 3-8

Abstract: Aqueous solutions of the lower alcohols exhibit anomalies in the density-concentration curve, and these are known to increase with temperature drop. The situation in the case of very low temperatures is a matter of interest.

Using the method of determining thermal expansion in capillaries, the author studied isopropyl alcohol, tertiary butyl alcohol, and glycerine, in aqueous solutions at temperatures ranging from +30°C down to -40°C.

It was found that for the first two substances, there is a maximum and a minimum in the density-concentration curve in the case of all temperatures below -20°. For most aqueous solutions at temperatures below +4°C, the difference between the density of pure water and its partial density in solution increases with temperature drop; but for the two alcohols referred to, a reverse effect is observed within a narrow range of concentrations and temperatures.

1/1

Acc. Nr:

AT0039903

Abstracting Service:  
CHEMICAL ABST.

Ref. Code:

4-78 UR0020

2

83434e Dependence of water vapor pressure on the concentration of the anomalous component in modified water. Deryagin, B. V.; Zheleznyi, B. V.; Rabmovich, Ya. I.; Simonova, V. Kh.; Talaei, M. V.; Churaev, N. V. (Inst. Fiz. Khim., Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 100(2), 372-5 [Phys Chem] (Russ). The so-called modified water, defined as a 2-component system, one of which is ordinary water and the other referred to as "anomalous component" of which the nature is unknown for the present, was studied. The anomalous component is less volatile, its diffusion coeff. is smaller, its  $d$  is greater, and its  $n$  and mol. wt. are appreciably greater than of ordinary water. The mol. wt. of the anomalous component was detd. exptl. as  $200 \pm 50$  and by a method of computation as  $180 \pm 50$ . For the present, these values given for mol. wt. are merely tentative upper limit values. The changes observed in modified water upon removal of one of the components are completely reversible. The state of complete modification of water, i.e. a state in which the water is satd. with the anomalous component, is equally reversible; however, the time required for attaining equil. may be several days or even weeks.

M. Hosen

4

REEL/FRA

LD 11

19741300

USSR

ZHELEZOV, Zh. I.

UDC: 681.3.06:51

"Control on Discrete Situational Nets"

V sb. Nauch. i prakt. probl. bol'shikh sistem. Sekts. Bol'shiye sistemy. Teoriya, Metodol., modelir. (Scientific and Practical Problems of Large Systems--collection of works. Large Systems Section. Theory, Methodology, Modeling), Moscow, "Nauka", 1971, pp 286-292 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V931)

Translation: A definition is given for a discrete situational net. The following are proposed as control criteria on a discrete situational net: 1) minimum (maximum) path between two active decision makers; 2) minimum number of active decision makers; 3) minimum (maximum) delay of objects at an active decision maker or along arcs of the net; 4) maximum number of objects which pass between decision makers; 5) passage along arcs between some given active decision makers in a time which is less than some predetermined time interval; 6) passage between some given active decision makers along the most reliable path. An algorithm is presented

1/2



USSR

ZHELEZOV, Zh. I., Nauch. i prakt. probl. bol'shikh sistem. Sekts. Bol'shiye sistemy. Teoriya, Metodol. modelir., Moscow, "Nauka", 1971, pp 286-292

in the language of the discrete situational net on control of ship passage for the Canal imeni Moscow. The algorithm is based on the method of statistical extrapolation tests. The control criteria used are losses due to nonproductive ship stoppages during passage through the canal, and also losses involving use of the ships. V. Mikheyev.

2/2

- 60 -

USSR

UDC 539.3

ZHELEZOVSKAYA, I. A., KRASYUKOV, V. P., PANKRATOV, N. D., RASSUDOV, V. M.

"Calculation of Hollow Shells in a Temperature Field"

Nauch. tr. Saratov. politekh. in-t (Scientific Works of Saratov Polytechnical Institute), 1970, No. 49, pp 79-83 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V125)

Translation: A hollow shell rectangular in plan with constant major curvatures and heated according to a linear law over the thickness and according to an arbitrary law along the coordinates in the plan is discussed. For the case when the temperature changes only over the thickness and along one of the coordinates in plan the system of equations for shell equilibrium in displacements reduces to a differential equation of the eighth order relative to the displacement function. The latter is integrated for a shell in which two edges (along which the temperature is a variable) are fastened in an arbitrary manner and the two others are hinged. The general solution is given in the form of the sum of a particular solution of the nonhomogeneous equation and the solution of the corresponding homogeneous equation. The first is assumed to be known and the second is obtained in the form of a unary series. Numerical results are not given. V. M. Kulakov.

1/1

USSR

UDC: 621.385.63

BESSONOV, V. I., ZHELEZOVSKIY, B. Ye., MIRKIN, V. I.

"Parametric Amplification and Frequency Conversion in a Two-Section Traveling Wave Tube"

Kiev, IVUZ: Radioelektronika, Vol 15, No 3, Mar 72, pp 290-295

Abstract: A two-section parametric traveling wave tube is considered in which the first amplification section is also a noise transformer for cooling the fast waves of the space charge. An analysis of expressions for the coupling coefficients of the waves in the tube shows that the electron stream can be cooled in the first section while simultaneously attaining high values of gain and conversion. Because optimum operating conditions are only slightly different for minimizing the noise factor and maximizing the gain and conversion factor, the two-section parametric traveling wave tube should make an effective low-noise microwave amplifier.

1/1

- 2 -

USSR

UDC 621.385.6

MASHNIKOV, V. V., ZHELEZOVSKIY, B. YE., PETROVA, V. N.

"Study of Complete Suppression of one of the Signals in the Two-Frequency Operating Mode of Traveling Wave Tubes"

Kiev, Izvestiya vysshikh uchebnykh zavedeniy--Radiotekhnika, Vol XIV, No 9, 1971, pp 1027-1031

Abstract: A study is made of some results of the theoretical and experimental investigations of the Kompfner effect in traveling wave tubes operating in the two-frequency mode. Inasmuch as the output signal in this case has a complex spectrum, the complete suppression of one of the signals is taken as absence of the component with the frequency of the investigated signal at the traveling wave tube output. Analytical methods of analyzing multifrequency operating modes of O-type devices are developed, and the physical processes in them are analyzed in depth. Graphs are presented for the relative drift angle as a function of the parameter  $X_1$  proportional to the amplitude of the input signal, the magnitude of the suppression current as a function of the parameter  $X_1$ , the voltage of the total damping of the first signal as a function of the input power of the second signal, and the experimental function for the output power  $1/2$

USSR

MASHNIKOV, V. V., et al., Izvestiya vysshikh uchebnykh zavedeniy--Radiotekhnika, Vol XIV, No 9, 1971, pp 1027-1031

of the first signal as a function of the input power of the second signal. With an increase in power (amplitude) of the second signal the voltage at which complete damping of the first signal takes place changes. The output power (amplitude) from cutoff of the signal depends on the input power of the second signal. The mechanisms behind these phenomena are discussed.

2/2

- 168 -

USSR

ZHELEZOVSKIY, BORIS EMEL'YANOVICH

"Electron Beam Parametric UHF Amplifiers" (Elektronnoluchevyye parametricheskiye SVCh-usiliteli), Moscow, Izd-vo "Nauka," 1971, 4,000 copies, 384 pages

Abstract: The monograph correlates the results of working with electron beam parametric amplifiers for the UHF range. The physical bases of electronics and the elements of theory of various types of electron beam parametric amplifiers are studied on the basis of modern concepts and, as far as possible, from a common point of view.

Significant attention is given to the problem of space discharge wave parametric amplifiers. Some information concerning the characteristics of these waves is presented and methods of excitation, amplification, and of separation of noise power from these corresponding waves are considered. The amplification of the electron beam's fast space-discharge waves moving in free space, as well as in a field of direct and backward waves of distributed microwave devices (twt and backward-wave tube amplifiers) is examined. Along with numerical methods for describing the physical processes occurring in

1/5

USSR

ZHELEZOVSKIY, BORIS YEMEL'YANOVICH, "Electron Beam Parametric UHF Amplifiers" (Elektronnoluchevyye parametricheskiye SVCh-usiliteli), Moscow, Izd-vo "Nauka," 1971, 4,000 copies, 384 pages

the examined devices, various approximation methods are applied, in particular, the method of coupled waves and the method of exponential series.

Parametric amplifiers with o-type axial fields are examined. An analysis of transverse waves of the electron beam with distributed coupling elements with and without cold losses is presented. A mechanism for the parametric amplification of fast cyclotron waves is discussed.

When examining the elements of the theory of parametric amplifiers with crossed-field M-types, much attention is given to the problems of the interaction of electron beam cyclotron waves in direct wave and backward wave distributed coupling elements and to the methods of amplifying fast cyclotron waves.

The monograph also presents information on parametric amplifiers of special types: amplifiers of fast strophotronic waves, amplifiers of M-J and E-types.  
2/5

USSR

ZHELEZOVSKIY, BORIS EMEL'YANOVICH, "Electron Beam Parametric UHF Amplifiers" (Elektronnoluchevyye parametricheskiye SVCh-usiliteli), Moscow, Izd-vo "Nauka," 1971, 4,000 copies, 384 pages

The book may be useful for scientific workers, aspirants, engineers, and also students of radio engineering specialities. The book has two tables, 249 figures, and 125 citations.

The chapter headings are as follows:

PART ONE		Page
Parametric Amplifiers of Space Discharge Waves		
Chapter 1.	Some Information Concerning Space Discharge Waves	14
Chapter 2.	Coupling Elements for Electron Beam Parametric Amplifiers of Space Discharge Waves	35
Chapter 3.	Parametric Amplification of Space Discharge Waves in a Drifting Electron Current	48
Chapter 4.	TWT Parametric Amplifier	91
Chapter 5.	Approximation Methods for Analyzing TWT Parametric Amplifiers	121
Chapter 6.	Backward-Wave Tube Parametric Amplifier	184

3/5



USSR

ZHELEZOVSKIY, BORIS YEMEL'YANOVICH, "Electron Beam Parametric UHF Amplifiers"  
(Elektronnoluchevyye parametricheskiye SVCh-usiliteli), Moscow, Izd-vo  
"Nauka," 1971, 4,000 copies, 384 pages

PART TWO

O-Type Axial Field Parametric Amplifiers

Chapter 7.	Fundamental Characteristics of Transverse Waves of an Electron Current	213
Chapter 8.	Interaction of Transverse Waves of an Electron Beam With Waves of Distributed Coupling Elements	226
Chapter 9.	Amplifying Section of Parametric Amplifiers of Fast Cyclotron Waves	253

PART THREE

Cross-Field M-Type Parametric Amplifiers

Chapter 10.	Fundamental Characteristics of Cyclotron Waves of an Electron Current Moving in Cross Fields	292
Chapter 11.	Distributed Coupling Element of M-Type Cyclotron Amplifiers	302

4/5

USSR

ZHELEZOVSKIY, BORIS EMELE'YANOVICH, "Electron Beam Parametric UHF Amplifiers"  
(Elektronnoluchevyye parametricheskiye SVCh-usiliteli), Moscow, Izd-vo  
"Nauka," 1971, 4,000 copies, 384 pages

Chapter 12. Amplifying Section of M-Type Parametric Amplifiers 317

PART FOUR

Special Types of Parametric Amplifiers

Chapter 13. Elements of the Theory of M-J Type Parametric  
Amplifiers 328

Chapter 14. Parametric Amplifiers of Fast Strophotronic Waves 341

Chapter 15. E-Type Parametric Amplifiers 358

USSR

UDC 621.375.8

ZHELEZOVSKIY, B. YE.

Elektronnoluchevyye parametricheskiye SVCh-usiliteli. (Cathode-Ray Parametric Microwave Amplifiers), Moscow, Nauka Press, 1971, 384 pp, ill., 1 r 63 k. (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4D234K)

Translation: This book can be used as a text for students in the advanced courses of radio physics specialties and also for postgraduates, scientific workers and radio engineers working in the field of microwave electronics. The basis for the book is a lecture course given by the author at the physics department of Saratov University. The main emphasis is placed on discovery of the physical essence of the phenomena which occur in cathode ray parametric amplifiers. This, to a significant extent, predetermined the efforts of the author to develop a number of approximate methods of analysis along with strict numerical calculation techniques. These approximate methods permit simple, easily understood analytical relations to be obtained for the basic characteristics of the studied devices.

1/1

USSR

BESSONOV, V. I., ZHELEZOVSKIY, B. Ye., and TYURIN, S. V. UDC: 621.385.633

"Starting Conditions of a Backward Wave Tube With Preliminary Modulation of the Electron Beam"

Kiev, Izvestiya VUZ USSR--Radioelektronika, No 10, 1972, pp 1216-1219

Abstract: This paper considers the operational peculiarities of a backward wave tube oscillator as affected by an external oscillator whose frequency is substantially different; the external signal is propagated in the electron beam in the form of space-charge current waves without coupling with the delay system. The case in which the outside signal is propagated along the beam in the form of a slow space-charge wave is also examined. The theoretical analysis begins with a system of equations describing the process of wave interaction for the case of phase velocity synchronization of the voltage waves in the delay system and the slow waves in the electron beam for a sufficiently large space charge. From this system, equations describing the spatial amplitudes of the waves in the delay system at the tube output are derived, and it is these equations from which the starting conditions of the tube are found.

1/1

- 60 -

Converters

USSR

UDO 621.385.6

ZHELEZOVSKIY, B.YE., MASHNIKOV, V.V., BESSONOV, V.I.

"To A Theory Of An Electron-Beam Frequency Converter"

V sb. Vopr.elektron.tekhn. (Problems Of Electronic Technology--Collection Of Works), Issue 2, Saratov, Saratov University, 1971, pp.52-58 (from RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3A83)

Translation: The harmonics are theoretically studied of the current in an electron stream modulated beforehand in a klystron-type gap by signals of two frequencies. The problem is considered in a kinematic approximation. An expression is obtained for the combination components of a bunched current. The conclusion is reached that within wide limits an electron-beam converter can assure satisfactorily simple retuning with respect to frequency. The proposed method of analyzing the harmonics of a current can be useful to a consideration of the nonlinear processes in other electron-beam microwave devices. 4 ref. R.M.

1/1

television

USSR

UDC 621.385.64

KUZNETSOV, M.I., BERBASOV, V.A., ZHELEZTSOVA, I.N. [Gorkiy State University]

"Pre-Oscillation Charge Distribution In A Cylindrical Magnetron"

Izv.VUZ:Radiofizika, Vol XV, No 2, Feb 1972, pp 283-290

Abstract: In previous works one or more of the authors of this paper discussed certain assumptions on the nature of the diffusion electron motion in a plane magnetron. On the basis of these assumptions, a diffusion equation is obtained for the distribution of potential and charge in a cylindrical magnetron diode. A calculation of the pre-oscillation distribution of charge and potential in the irregular part of the electron cloud was fulfilled with the aid of an electronic computer. It is found that at least, at  $H > 1.5 H_{cr}$ , the major part of the electron cloud is in the regime close to the static synchronous one. 2 fig. 10 ref. Received by editors, 26 Feb 1971.

1/1

USSR:

UDC 621.385.64

KUZNETSOV, M. I., BERBASOV, V. A., ZHELEZTSOVA, I. N., Gor'kiy State University

"Pre-oscillation Charge Distribution in a Cylindrical Magnetron"

Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 2, 1972, pp 283-290

**Abstract:** The concepts of the nature of diffusion motion of electrons in a magnetron discussed previously [V. A. Berbasov, Izv. vyssh. uch. zav., Radiofizika, Vol 11, No 9, 1423, 1968; M. I. Kuznetsov, Elektronnaya tekhnika, seriya 1, Elektronika SVCh, No 12, 83, 1970; No 11, 28, 1969] as applied to a flat magnetron were used to obtain the diffusion equation for a cylindrical magnetron. By solving this equation it is shown that at least for  $H > 1.5 H_{cr}$ , the majority of the electron cloud is close to static synchronous. The calculations show that the charge and potential distributions depend very little on the parameter  $C_2$  [ $C_2 = \frac{I_n \omega_n^2}{H^2} / 2\pi \epsilon_0 (e/m) E_{r n}^2$ ] in a broad range including the experimental values of  $50 < C_2 < 1,000-2,000$ .<sup>a</sup> The standard results of calculations of the preoscillation charge and potential distributions in the irregular section of the electron cloud of a magnetron are presented in graphical form and analyzed. The basic result that the pregeneration state of the space charge in a

1/2

- 67 -

USSR

KUZNETSOV, M. I., et al., Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,  
Vol XV, No 2, 1972, pp 283-290

cylindrical magnetron is close to static synchronous is confirmed by sonde measurements in magnetrons with thin cathodes [O. Dochler, Ann. de Radiocl., No 3, 27, 1948]. It was recently also confirmed by measurements of the potential distribution in a magnetron with a thick cathode at Gor'kiy State University. The results of these measurements will be published later. The results presented in this paper will be of value in constructing the theory of excitation of a magnetron generator.

2/2



1/2 047 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--ELECTRON MICROSCOPE STUDY OF HIGHLY DISPERSED COBALT -U-  
AUTHOR--(04)-SHVETS, T.M., VASILENKO, V.P., ZHELIBO, YE.P., NATANSON, E.M.  
COUNTRY OF INFO--USSR  
SOURCE--UKRAIN, KHIM, ZHUR., APR. 1970, 36, (4), 335-339  
DATE PUBLISHED----APR70  
SUBJECT AREAS--MATERIALS, CHEMISTRY  
TOPIC TAGS--ELECTRON MICROSCOPY, COBALT ALLOY, METAL POWDER, POWDER METAL,  
METAL FIBER, ELECTRODEPOSITION, ELECTROLYTE, CHLORIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/0343 STEP NO--UR/0073/70/036/004/0335/0339  
CIRC ACCESSION NO--AP0137447  
UNCLASSIFIED

2/2 047

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137447

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

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--PLATINUM (IV) DIAMINE DICHLORO COMPLEX CONVERSIONS IN SOLUTIONS  
-U-  
AUTHOR--(03)-ZHELIGOVSKAYA, N.N., BREUSOVA, YU.G., KANTER, T.M.  
COUNTRY OF INFO--USSR  
SOURCE--VESTN. MOSK. UNIV., KHIM. 1970, 11(1), 32-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--PLATINUM, AMMONIA, HYDROLYSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1987/1096 STEP NO--UR/0189770/011/001/0032/0037  
CIRC ACCESSION NO--AP0104494  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104494

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACID DISSOCN. CONSTS. OF (PTCL  
SUB3(H SUB2 O) (NH SUB3)SUB2) PRIME POSITIVE AND (PT(OH)CL SUB2(H SUB2  
O)(NH SUB3)SUB2) PRIME POSITIVE ARE DETD. THE COMPLEXES ARE FORMED AS A  
RESULT OF HYDROLYSIS OF (PTCL SUB3(NO SUB2)(NH SUB3)SUB2), (PTCL SUB4(NH  
SUB3)SUB2), (PT(OH)CL SUB3 (NH SUB3)SUB2), AND (PT(OH)CL SUB2(NO SUB3)  
(NH SUB3)SUB2). HYDROLYSIS CONSTS. FOR THE 4 COMPS. ARE 2.04 TIMES 10  
PRIME NEGATIVE6, 5.68 TIMES 10 PRIME NEGATIVE5, 9.47 TIMES 10 PRIME  
NEGATIVE7 AND 1.39 TIMES 10 PRIME NEGATIVE6, RESP. AT 25DEGREES.

UNCLASSIFIED

USSR

UDC 549.212 + 543:620.1

ZHELIXHOVSKAYA, E. I., and SYSKOV, K. I., Moscow Institute of Chemical Technology  
imeni D. I. Mendeleev, Moscow, Ministry of Higher and Secondary Specialized  
Education RSFSR

"Optical Study of the Structure of Pyrolytic Carbon"

Moscow, Khimiya Tverdogo Topliva, No 5, Sep-Oct 70, pp 93-97

Abstract: The authors studied the effect of certain process factors on the formation of the globular-conical structure of pyrolytic carbon and attempted to study the structure of the globular formations by the method of consecutive surface oxidation. The size (diameter) of the globular formations was studied in relation to the process time and temperature, the concentration of the reaction zone. The results indicate that the globule size increases with an increase in all these factors. This is proof and the formation of pyrolytic carbon.

The globular and the canonical structure were found to be inter-related, confirming that a stage in the formation of pyrolytic carbon is the appearance of high-molecular hydrocarbons. These intermediate compounds take the shape of drops.

1/2

USSR.

ZHELIKHOVSKAYA, E. I., and SYSKOV, K. I., Khimiya Tverdogo Topliva, No 5,  
Sep-Oct 70, pp 93-97

The method of consecutive oxidation of pyrolytic carbon films, developed by the State Scientific Research Institute of the Electrode Industry, Chelyabinsk, was used to study the fine microstructure of the globules, making it possible to study the behavior of pyrolytic carbon in individual oxidation stages and to find a number of peculiarities in globule structure. On the basis of the results, a mechanism is suggested for the initiation of pyrolytic carbon and the growth of its globular-conical structure.

2/2

USSR

ZHELINSKIY, G. S.

UDC: 8.74

"Organizing the Operation of the Magnetic Tape Access Unit in the 'Minsk-22' Computer With Bypass of Defective Sections"

V sb. Teoriya i prakt. mekhanizir. obrab. ekon. inform. (Theory and Practice in Mechanized Processing of Economic Information--collection of works), Moscow, 1971, pp 140-149 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V694)

Translation: The author considers a version of organizing the operation of the magnetic tape access unit in the "Minsk-22" computer with bypass of defective tape sections. This version assumes use of an economic interpreting system for the "Minsk-22" computer and is realized as a block added to the "magnetic tape access" operator. This block provides for: 1) determining the boundaries of a defective tape section as information is recorded on the magnetic tape; 2) automatic recording of the addresses of defective sections on the corresponding tape-transport mechanism; 3) automatic recording of the portion of the data block with bypass of a defective section; 4) automatic reading of the portion of the data block with bypass of a defective section. A defective section is understood to mean a section in which re-

1/2

USSR

ZHELINSKIY, G. S., Teoriya i prakt. mekhanizir. obrabot. ekon. inform.,  
Moscow, 1971, pp 140-149

... cording fails after the third attempt. The block determines the defective section accurate to a document whose length is determined from the description of the corresponding data block. Each defective section has an initial address and a duration expressed in terms of the number of documents. It is noted that realization of the proposed version of organizing magnetic tape access will improve the reliability of data storage on tape, reduce losses of machine time, and improve the utilization of magnetic tape.

2/2

- 42 -



USSR

UDC 536.25

VEL'TISHCHEV, N. F., ZHELNIN, A. A.

"Cellular Convection in a Vorticity Field"

Tr. Gidrometeorol. n.-i. tsentr. SSSR (Works of the Hydrometeorological Scientific Research Center of the USSR), 1971, No. 73, pp 3-16 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9B686)

Translation: The nonlinear problem of cellular convection in an atmosphere rotating with constant angular velocity is discussed. It is shown that the rotation has a "stretching" effect on convective motion in the atmosphere. The critical values of the absolute vortex under which the existence of hexagonal convective cells or two-dimensional rolls becomes impossible are a function of the nonlinearity of the temperature profile, viscosity and the scale of the perturbations arising. An increase in the nonlinearity of the temperature profile and the coefficient of temperature viscosity and a drop in the wavelength leads to an increase in the critical value of the absolute vortex under which regular convection in the form of hexagonal cells and two-dimensional rolls becomes impossible. Quasihexagonal cells may exist for a magnitude of the absolute

1/2

- 83 -

USSR

VEL'TISHCHEV, N. F., ZHELNIN, A. A., Tr. Gidrometeorol. n.-i. tsentr. SSSR,  
1971, No. 73, pp 3-16

vortex of the order of  $10^{-4} - 10^{-5} \text{ sec}^{-1}$ . Convective cells with a diameter equal to 100 km become unstable even for an absolute vortex of the order of  $8 \cdot 10^{-6} \text{ sec}^{-1}$ . This explains the reason for the absence of quasihexagonal cells of diameter more than 100 km in television pictures from satellites. Authors abstract.

2/2

USSR

UDC 629.78.015.076.8

ZHELNIN, Yu. N.

"On Optimal Control of an Aircraft Under Conditions of Uncertainty"

Uch.zap.Tsentr. Aerogidrodinam.in-ta (Scientific Notes of the Central Aerohydrodynamic Institute) 1971, Vol 2, No 2, pp 50-57 (from Referativnyy Zhurnal, Raketostroyeniye, No 11, Nov 71, Abstract 11.41.161, Resume)

Abstract: The problem of optimal control of an aircraft in the presence of unknown disturbances and incomplete data on current phase coordinates received by onboard measuring instruments is considered. Methods of the theory of differential games are used for solving this problem. The problem of optimal control of flight path of a hypersonic craft at atmospheric entry is considered. The structure of optimal control and of the most unfavorable disturbances for one class of entry trajectory were determined on the basis of a qualitative analysis of necessary optimal conditions of game variational problem. 6 references.

1/1

- 11 -

Acc. Nr: **AP0046163**

Ref. Code: **UR0646**

PRIMARY SOURCE: Teoreticheskaya i Matematicheskaya Fizika, 1970,  
Vol 2, Nr 1, pp 87-102

**THE REPRESENTATION OF SPINORS BY REAL  
AND COMPLEX TENSOR AGGREGATES**

**V. A. Zhelnorovich**

All independent real and complex, as well as scalar and tensor characteristics are found for spinors in  $n$ -dimensional (complex, in general case) Euclidian space. The one-to-one correspondence is established between the components of a spinor and of a certain complex tensor aggregate  $C$ , defined by the spinor. For real Euclidian spaces the homomorphism is deduced between the components of the spinor and of the real tensor aggregate  $D$ , defined by the spinor. All relationships between the spinor and the aggregates  $C$  and  $D$  are written out separately in the case of Minkowski space. The results obtained open the possibility of matricial description of the interaction between fermion and gravitation fields.

//

REEL/FRA  
**19781240**

*DI* 21

USSR

UDC: 621.373.535(206.3)

ZHELNOV, B. L., SMIRNOV, G. I.

"A Gas Ring Laser With Naturally Active Cell"

Leningrad, Optika i Spektroskopiya, Vol 32, No 2, Feb 72, pp 388-391

Abstract: The authors consider the polarization characteristics of a gas ring laser with an isotropic element having natural optical activity placed in the cavity with an even number of mirrors. It is shown that linear polarization in each of the opposing waves as well as circular and elliptical polarization is possible, depending on the coefficient of nonlinear coupling of the circular field components on the Zeeman sublevels of the atom. The stability regions for circular and elliptical polarizations may overlap, causing hysteresis phenomena in transitions from one mode to another when there is a continuous variation in detuning of the resonator away from the frequency of the atomic transition. The authors thank V. S. Smirnov for repeated discussions during the work, and B. I. Troshin for the idea of the problem. One figure, bibliography of seven titles.

1/1

172 051 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--INFLUENCE OF COLLISIONS ON THE LASING MODES OF A GAS RING LASER -U-  
AUTHOR--(02)--ZHELNOV, B.L., SMIRNOV, G.I.  
COUNTRY OF INFO--USSR  
SOURCE--OPTIKA I SPEKTROSKOPIIA, VOL. 28, APR. 1970, P. 747-750  
DATE PUBLISHED--APR70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--GAS LASER, GAS PRESSURE, MOTION EQUATION, MOLECULAR KINETICS,  
COLLISION, TRAVELING WAVE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/1226 STEP NO--UR/0051/70/028/000/0747/0750  
CIRC ACCESSION NO--AP0124880  
UNCLASSIFIED

2/2 051

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124880

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE INFLUENCE OF PRESSURE ON THE LASING MODES OF A GAS RING LASER. ATOMIC COLLISIONS ARE TAKEN INTO ACCOUNT IN THE EQUATION OF MOTION OF THE TWO LEVEL DENSITY MATRIX OF THE ACTIVE MEDIUM. A LOW ENERGY SOLUTION TO THE MATRIX EQUATION IS OBTAINED IN THE FORM OF TWO OPPOSING TRAVELING WAVES. IT IS SHOWN THAT THE FREQUENCY RANGE IN WHICH OPPOSING TRAVELING WAVE MODES (WITH DIFFERENT AMPLITUDES) CAN EXIST INCREASES WITH INCREASING PRESSURE.

UNCLASSIFIED

1/2 042 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--INSTABILITY OF UNIDIRECTIONAL EMISSION OF A RING LASER -U-  
AUTHOR-(03)-ZHELNOV, B.L., SMIRNOV, V.S., FADEYEV, A.P.  
COUNTRY OF INFO--USSR Z  
SOURCE--SPEKTROSKOPIIA, VOL. 28, APR. 1970, P. 744-746  
DATE PUBLISHED----APR70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--LASER RADIATION SPECTRUM, LASER STABILITY, MULTIMODE LASER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1199 STEP NO--UR/0051/70/028/000/0744/0746  
CIRC ACCESSION NO--AP0124853  
UNCLASSIFIED



2/2 042

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124353

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

ABSTRACT. ANALYSIS OF THE INTERACTION OF OPPOSING MODES IN A RING LASER. IT IS SHOWN THAT FOR BOTH HOMOGENEOUS AND INHOMOGENEOUS LINE BROADENING, THERE ALWAYS EXISTS AN EMISSION ENERGY RANGE (WHICH DEPENDS ON THE MISMATCH BETWEEN THE LASING FREQUENCY AND THE ATOMIC TRANSITION FREQUENCY) IN WHICH THE UNIDIRECTIONAL EMISSION MODE IS UNSTABLE WITH RESPECT TO THE EXCITATION OF THE OPPOSING MODE.

UNCLASSIFIED

USSR

Z UDC 621.375.9:535

ZHELNOV, B. L., SMIRNOB, V. S., FADEYEV, A. P.

"Instability of Unidirectional Radiation in a Ring Laser"

Leningrad, Optika i Spektroskopiya, Vol 28, No 4, April 1970,  
pp 744-746

Abstract: This article contains a study of the problem of interaction of counter waves in a ring laser. It is demonstrated that in the case of both homogeneous and inhomogeneous types of broadening of the amplification circuit there is always a generation energy range which depends on the difference of the generation frequency and the atomic transition frequency inside which the conditions of unidirectional radiation are unstable with respect to excitation of a counter wave. In the solution of the problems the field inside the resonator is found in the form of traveling waves with amplitudes which slowly vary with time. Both a gas laser and a solid state laser are considered. Explanations are given for the dependence of  $\Gamma$  on the radiation energy, where  $\Gamma$  defines the increment in the weak field ( $E \sim \exp \Gamma t$ ). In the analysis of the solid state laser it is pointed out  
1/2

- 123 -

USSR

ZHELNOV, B. L., et al, Optika i Spektroskopiya, Vol 28, No 4,  
April 1970, pp 744-746

that  $\text{Im } \Gamma$  gives a perturbation frequency shift analogous to the effect of a collision in a gas. In addition,  $\text{Im } \Gamma/k$  defines the phase rate of the current amplifying the field and caused by spatial modulation of the overpopulation.

2/2

172 024

UNCLASSIFIED

PROCESSING DATE—30OCT70

TITLE—SOME RESULTS OF STUDY OF ORGANIZATION OF HELMINTHIC DISEASES  
CONTROL IN ROVNO AND CHERNOVTSY REGIONS OF THE UKRAINIAN SSR -U-  
AUTHOR—(05)—SHULMAN, YE.S., VOLOSYUK, V.P., ZHELOMUR, I.YA., LYUBAVINA,  
M.G., LEVCHENKO, I.F.

COUNTRY OF INFO—USSR

SOURCE—MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLENZI, 1970, VOL  
39, NR 3, PP 356-359

DATE PUBLISHED—70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—PARASITIC DISEASE, DISEASE CONTROL, INTESTINAL DISEASE

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—2000/0224

STEP NO—UR/0358/70/039/003/0356/0359

CIRC ACCESSION NO—AP0123987

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE—30OCT70

CIRC ACCESSION NO—AP0123987

ABSTRACT/EXTRACT—(U) GP-0-

ABSTRACT. EXPERIENCE OF ORGANIZATION OF HELMINTHIC DISEASES CONTROL IN THE ROVNO AND CHERNOVTSY REGIONS OF THE UKRAINIAN SSR WAS STUDIED. STATE SANITARY CONTROL OF THE SANITARY CONDITIONS IN RURAL COMMUNITIES IS WELL ORGANIZED, OWING TO WHICH AND TO REGULAR DEHELMINTHIZATION MEASURES THE INFESTATION RATE OF ASCARIASIS HAS BEEN REDUCED CONSIDERABLY IN A NUMBER OF AREAS. HELMINTHIC DISEASE CONTROL MEASURES ARE PLANNED FOR EACH SETTLEMENT. A CONSIDERABLE ROLE IN THEIR ORGANIZATION IN THE VILLAGE BELONGS TO SANITARY FELDSHER OF THE DISTRICT HOSPITAL. A NUMBER OF METHODS FOR BETTER ORGANIZATION OF HELMINTHIC DISEASES CONTROL. PARTICIPATION OF RURAL COUNCILS IN REALIZATION OF SANITARY MEASURES, GREATER ENLISTING COOPERATION OF RURAL MEDICAL WORKERS AND PUBLIC SANITARY WORKERS IN CONTROL OF SANITARY CONDITIONS ESPECIALLY OF DESINFECTION OF FECAL FERTILIZERS, COMBINATION OF HELMINTHIC DISEASE CONTROL MEASURES AND MEASURES FOR CONTROL OF ENTERIC INFECTIONS, ETC. FACILITY: INSTITUT MEDITSINSKOY PARAZITOLOGII I TROPICHESKOY MEDITSINY IM. MARTSINDVSKOGO. FACILITY: KIYEVSKIY INSTITUT EPIDEMIOLOGII, MIKROBIOLOGII I PARAZITOLOGII. FACILITY: ROVENSKAYA OBLASTNAYA I GORODSKAYA SANITARNO EPIDEMIOLOGICHESKIYE STANTSII.

UNCLASSIFIED

USSR

UDC 632.951.2.07

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

"Synthesis of the Koral Insecticide"

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

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

1/1

- 46 -

1/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--PROCESSES FOR INITIATING COLUMN CHARGES OF THE SIMPLEST EXPLOSIVES

-U-

AUTHOR--(06)--DYADECHKIN, N.I., LOSEV, V.G., ZHELTETSKIY, A.YE., BAYDA, V.I., NAZARCHUK, M.N., SEMKO, G.I.

COUNTRY OF INFO--USSR

2

SOURCE--GORN. ZH. 1970, 145(3), 36

DATE PUBLISHED-----70

SUBJECT AREAS--ORDNANCE

TOPIC TAGS--AMMONIUM NITRATE, DIESEL FUEL, DETONATION, COMMERCIAL EXPLOSIVE/(U)ASB GRANULIT EXPLOSIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0763

STEP NO--UR/0127/70/145/003/0036/0036

CIRC ACCESSION NO--AP0136200

UNCLASSIFIED

2/2 021

CIRC ACCESSION NO--AP0136200

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COLUMN CHARGES OF IGDANIT (A MIXT. OF 7 L. DIESEL FUEL WITH 100 KG GRANULATED NH SUB4 NO SUB3), GRANULIT AS-8, AND ZERNOGRANULIT (THE COMPN. OF THE LAST TWO EXPLOSIVES IS NOT GIVEN) WERE INITIATED. TO AVOID DUST FORMATION WHEN FILLING THE BLAST HOLES WITH ZERNOGRANULIT, 4PERCENT WATER OR DIESEL FUEL WAS ADDED TO THIS EXPLOSIVE. THE EXPTS. WERE DONE IN MINES UNDERGROUND, IN STEEL PIPES 4-4.5 M TIMES 100 MM DIAM., WITH 2.5-MM WALLS. THE EXPLOSIVES DETONATED WHEN INITIATED BY 2 LINES OF DETONATING CORD PLACED ALONG THE WHOLE LENGTH OF THE CARTRIDGES, OR BY TWO DONOR CHARGES (MIN. WEIGHT OF 0.4 KG EACH), CONNECTED BY TWO LINES OF DETONATING CORD.

FACILITY: KRIVOROZH. GORNORUD. INST., KRIVOI ROG, USSR.

UNCLASSIFIED



USSR

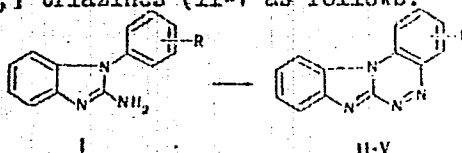
UDC 547.785.5.556.3

KOLODYAZHRAYA, S. N., SIMONOV, A. M., ZHELTIKOVA, N. N., and POZHARSKIY, A. F.,  
Rostov State University, Rostov-on-Don

"Intramolecular Nitrogen Bonding in a Series of 1-Substituted 2-Aminobenzimidazols"

Riga, Khimiya Geterotsiklicheskih Soyedineniy, 5, May 1973, pp 714-715

Abstract: Compounds of the type 1-aryl-2-aminobenzimidazol (I) form, in addition to the intermolecular bonds, intramolecular nitrogen bonding which occurs in the o-position of N-aryl radical and leads to the formation of dibenz [a,g] imidazo [2,1-c][1,2,4,1] triazines (II-V as follows:



The ring closure occurs smoothly in concentrated  $H_3PO_4$ ; the presence of  $H_2SO_4$  results in the formation of 5- and 6-azobenzimidazols. A methyl group in the m-position on the N-aryl radical facilitates the ring closure. Elemental analysis, IR data, physical constants, and molecular weights are given.

1/1

1/2 021  
UNCLASSIFIED  
TITLE--ELECTRIC CURRENT THROUGH A FLUIDIZED BED OF CONDUCTING PARTICLES  
-U- PROCESSING DATE--16OCT70  
AUTHOR--(03)-ZHELTOV, A.I., ZABRODSKIY, S.S., BORODULYA, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--INZHENERNO FIZIC HESKIY ZHURNAL, 1970, VOL 18, NR 1, PP 64-67  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ELECTRIC RESISTANCE, ELECTRIC CURRENT, FLUIDIZED BED,  
GRAPHITE, PARTICLE PHYSICS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/1722 STEP NO--UR/0170/70/018/001/0064/0067  
CIRC ACCESSION NO--AP0118700  
UNCLASSIFIED

2/2 021

CIRC ACCESSION NO--AP0118700

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIG. 1. SPECIFIC ELECTRIC RESISTANCE (OHM CM) OF FLUIDIZED BED OF GRAPHITE PARTICLES 0.1-0.16 MM VERSUS DENSITY OF CURRENT (A-CM PRIME<sup>2</sup>) WITH EXPANSION OF 1.2: 1, ARGON, 20DEGREESC; 2, HELIUM, 2000DEGREESC; 3, ARGON, 2000DEGREESC. FIG. 2. SCHEME OF EXPERIMENTAL INSTALLATION: 1, CHAMOTTE; 2, ELECTRODES; 3, ALUMINUM OXIDE FILLING; 4, GAS DISTRIBUTOR; 5, FLUIDIZED BED. FIG. 3. COMPARISON OF RELATIONSHIPS P EQUALS F(1) FOR GRAPHITE PARTICLES 0.16-0.2 MM IN DIA WITH EXPANSION 1.1 FOR RECTANGULAR (LIGHT) AND CYLINDRICAL (DARK POINTS) INSTALLATIONS, RESPECTIVELY (P, OHM. CM; I, A-CM PRIME<sup>2</sup>): 1, TEMPERATURE 20 DEGREESC; 2, TEMPERATURE 1000 DEGREESC. FIG. 4. TEMPERATURE DEPENDENCE OF AMPLITUDE (PERCENT) OF CURRENT FLUCTUATIONS FOR PARTICLES 0.16-0.2 MM IN DIA WITH EXPANSION 1.1: 1, RECTANGULAR INSTALLATION; 2, CYLINDRICAL INSTALLATION. THE DEPENDENCE OF SPECIFIC ELECTRIC RESISTANCE OF A FLUIDIZED BED OF CONDUCTING PARTICLES ON CURRENT DENSITY IS STUDIED. ELECTRODYNAMIC MECHANISM OF THE RELATIONSHIP S EQUALS F (1) IS DESCRIBED AND IT IS SHOWN THAT WITH INCREASING TEMPERATURE THE AMPLITUDE AND FREQUENCY OF ELECTRIC CURRENT FLUCTUATIONS DECREASE WHICH DEMONSTRATES LOWER FREQUENCY OF GAS BUBBLE MOTION.

UNCLASSIFIED

Heat Treatment

USSR

UDC 621.785:620.192.46:669.14.018.8

ZHELTOVA, G. A., BELINKIY, A. L., KRISTAL', M. M., ADUGINA, N. A., All-Union Scientific Research and Design Institute of Chemical Machine Building

"Effect of Heat Treatment on the Tendency of OOKh16N15M3 Steel to Inter-crystalline Corrosion"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73, pp 12-15

Abstract: Production of OOKh16N15M3 steel in the form of chemical containers with 0.03% C (max) has been mastered and tested. Samples for metallographic studies and corrosion tests were quenched from 1100 and 1200°C with 30-minute soaks and repeated heating to 550-950°C every 50°C with 10 and 30-minute, and 1-, 5-, 10-, 50-, and 100-hour soaks. Nitric acid (65%) was used in the corrosion tests. It was found that heating at 550-950°C causes precipitation of carbides and chi-phase in OOKh16N15M3 steel and precipitation of carbides and the sigma- and chi-phases in OKj17N16M3T steel. With increased quenching temperature the regions of carbide and intermetallic precipitations for OOKh16N15M3 steel correspond to the long soaking times. Inter-crystalline corrosion was detected only after lengthy (not less than 10 hours) thermal action for OOKh16N15M3 steel causing precipitation of a continuous

1/2

USSR

ZHELTOVA, G. A., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov,  
No 4, Apr 73, pp 12-15

network of carbides and chi-phase along the austenite grain boundaries, while for steel OKh17N16M3T this form of corrosion was observed after only four hours. The intercrystalline corrosion tendency for the investigated steels develops after a short soak at 700-850°C. The tendency of OKh17N16M3T steel and its weld joints is greater than for OOKh16N15M3 steel and knife corrosion is absent in OOKh16N15M3 steel when tested in nitric acid and in the medium of a synthesis column and the mixer for carbamide production. Four figures, 2 tables, 5 bibliographic references.

2/2

- 21 -

1/2 031 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--CORROSION RESISTANCE OF PURE AUSTENITIC STEEL OKH17N16M3T -U-  
AUTHOR--(04)-BELINKIY, A.L., KRISTAL, M.M., ZHELTOVA, G.A., ADUGINA, N.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZASHCH. METAL. 1970, 6(1), 37-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--CORROSION RESISTANT STAINLESS STEEL, AUSTENITIC STEEL, ALLOY  
DESIGNATION, INTERGRANULAR CORROSION, CORROSION CRACKING, WELDING  
ELECTRODE, WELD JOINT, NITRIC ACID, UREA, OXIDATION, STEEL  
QUENCHING/(U)OKH23N28M3D3T STAINLESS STEEL, (U)000KH17N14M2 STAINLESS  
STEEL, (U)KH17N13M3T STAINLESS STEEL, (U)OKH17N16M3T STAINLESS STEEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1990/1314 STEP NO--UR/0365/70/006/001/0037/0039  
CIRC ACCESSION NO--AP0109398  
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109398

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PURE AUSTENITIC STEEL OKH17N16M3T CONTG. SMALLER THAN 0.08PERCENTC AND ITS WELDED JOINTS WERE MORE RESISTANT IN SOME CORROSIVE MEDIA (UREA, HNO SUB3, ETC.) THAN STEEL KH17N13M3T TO GENERAL POINT, CREVICE, AND STRUCTURALLY SELECTIVE CORROSION. IN HIGHLY OXIDIZING MEDIA, STEEL OKH17N16M3T IS SUBJECT TO INTERCRYST. CORROSION; THEREFORE, EQUIPMENT MADE OF THIS STEEL FOR USE IN THESE MEDIA SHOULD BE QUENCHED AT 1100DEGREES AFTER MANUF. HIGH CORROSION RESISTANCE OF STEEL OKH17N16M3T WELDED JOINTS CAN BE OBTAINED BY USING, IN OXIDIZING MEDIA, THE OZL-20 AND KHL-1 ELECTRODE IN THE CASE OF ELEC. ARC WELDING, WHILE IN THE CASE OF AR ARC WELDING USE IS MADE OF THE WELDING WIRE 00OKH17N14M2 OR OKH23N28M3D3T; IN REDUCING MEDIA KHL-1 ELECTRODE OR THE WIRE OKH23N28M3D3T ARE USED. QUENCHING OF WELDED JOINTS IMPROVES THEIR RESISTANCE TO CORROSION CRACKING. FACILITY: VSES. NAUCH.-ISSLED. INST. KHIM, MASHINDSTR., MOSCOW, USSR.

UNCLASSIFIED

1:2 017 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--CORRELATIONS AMONG LENGTHS, ORDERS, HYBRIDIZATION OF ATOMS, AND  
FORCE CONSTANTS OF CARBON NITROGEN AND CARBON OXYGEN BONDS -U-  
AUTHOR-(03)-POPOV, YE.M., KOGAN, G.A., ZHELTOVA, V.N.  
COUNTRY OF INFO--USSR  
SOURCE--TEOR. EKSP. KHIM. 1970, 6(1); 14-22  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--NITROGEN COMPOUND, CARBON COMPOUND, CHEMICAL BONDING, OXYGEN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/0346 STEP NO--UR/0379/70/006/001/0014/0022  
CIRC ACCESSION NO--AP0137450  
UNCLASSIFIED



2/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137450

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHARACTER OF THE C-N AND C-O BONDS ARE INVESTIGATED IN THE FOLLOWING DEPENDENCIES: THE ORDERS OF THE BONDS VS. LENGTH, LENGTH OF THE BOND VS. AV. PERCENTAGE OF S CHARACTER, AND THE BOND ORDER VS. PI CONTRACTION OF THE BONDS. THE DIFFERENCES OF THE LENGTHS OF THE BONDS ARE DUE MOSTLY TO THE SPECIFICITY OF THE SIGMA BONDS. THE PLOT OF THE LENGTHS OF THE SIGMA BONDS OF C-N AND C-O VS. THE AV. PERCENTAGE OF S CHARACTER IS LINEAR. THE GREATEST CHANGE IN THE LENGTH WITH THE PI BOND ORDER OF C-N AND C-O STARTS AT A PI BOND ORDER OF 0.3. THE DEPENDENCE IS LINEAR. AT A PI BOND ORDER OF 1.0, THE SLOPE OF THE DEPENDENCE AGAIN BECOMES SMALLER. THE DEPENDENCE OF THE PI BOND ORDER ON THE FORCE CONST. IS DISCUSSED. FACILITY: INST. KHIM. PRIR. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 534.63+534.211

GLAZNEV, V. N., ZHELTUKHIN, N. A.

"Determination of Frequency Characteristic of Thermoanemometer Using Planar Sound Wave"

Novosibirsk, Izv. SO AN SSSR, Ser. Tekhn. Nauk, No. 8, 1970, pp 20-25.

Abstract: It is suggested that the frequency characteristic of a thermoanemometer be determined using acoustical oscillations which have an identical influence on the sensor to that of turbulent oscillations. Experiments were performed to illustrate the method, using a cylindrical tube 37 mm in diameter exposed to oscillations at 2590 Hz. The amplitude-frequency characteristic of a DISA-55 D01 thermoanemometer was determined. The method suggested is a new method for determination of the frequency characteristic of thermoanemometers over a broad frequency range. The accuracy and frequency range of the method are primarily determined by the metrological characteristics of the microphone used. The method is simple and easily performed.

1/1

USSR

UDC 542.91:661.718.1

NAZAROV, Yu. V., MUSLINKIN, A. A., and ZHELTUKHIN, V. E., Institute of Organic and Physical Chemistry imeni A. Ye. Arbusov, Academy of Sciences USSR

"Interaction of Bis-(hydroxymethyl)phosphinic Acid With Phosphorus Pentachloride"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 71, pp 1806-1808

Abstract: The article describes results of a study of the reaction of bis-(hydroxymethyl)phosphinic acid with phosphorus pentachloride in a phosphorus oxychloride medium at temperatures from 60 to 100°. It was found that the yield of bis-(chloromethyl)phosphinic chloride, other conditions being equal, decreases with a rise in the reaction temperature, while the yield of chloromethylphosphonic dichloride and methyl chloride increases, with the amount of methyl chloride which forms increasing almost proportionally to the chloromethylphosphonic chloride yield. The formation of the latter two products indicates the presence of processes leading to splitting of the P-C bond.

1/1

USSR

2 UDC 547.241

IVANOV, B. YE., and ZHELTUKHIN, V. F., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Kazan, Academy of Sciences USSR

"Reactivity of Trivalent Phosphorus Derivatives"

Moscow, Uspekhi Khimii, Vol 39, No 5, May 70, pp 773-802

Abstract: A review of the most important characteristics of trivalent phosphorus derivatives with 197 references. One aspect concerns the "biphility" of the phosphorus atom -- the ability of act as a donor and as an acceptor of electrons sequentially or concurrently in reactions with other compounds by utilizing a free electron pair as well as d-orbitals in the same process. Other topics concern ambident properties of derivatives of trivalent phosphorus which result from the input of either the nucleophilic elements O, N, S, or elements with vacant d-orbitals, such as Si or Sn, bound directly to phosphorus. Some limitations of this input as well as its characteristics are discussed. Finally, compounds of the phosphorus-halide series are discussed, with particular attention to the role played by d-orbitals in affecting the reactivity of phosphorus.

1/1

USSR

UDC: 539.2.01

ZHELUDEV, V. A.

"On Perturbation of the Spectrum of the One-Dimensional Adjoint Schrödinger Operator With Periodic Potential"

V sb. Probl. matem. fiz. (Problems of Mathematical Physics -- collection of works), Vyp. 4, Leningrad, Leningrad University, 1970, pp 61-82 (from RZh-Fizika, No 9, Sep 70, Abstract No 9Ye293)

Translation: An investigation is made into the spectrum of the one-dimensional Schrödinger equation with periodic potential when perturbed by the potential  $q(x)$  which vanishes at infinity. A bound on the number of eigenvalues of the disturbed operator is obtained for purposes of the undisturbed continuous spectrum under conditions of constancy of the sign of  $q(x)$  (1), and convergence of the integral of the function  $[q(x)]/(1+x^2)$ . A proof is given for the existence of such eigenvalues under a condition weaker than (1).

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--EFFECT OF ACUTE AND CHRONIC HYPOXIA ON SOME CHARACTERISTICS OF  
CARBOHYDRATES AND LIPIDS METABOLISM IN RATS -U-  
AUTHOR-(04)-SIMANOVSKIY, L.N., PERTSEVA, M.N., ZHELUDKOVA, Z.P., MAZINA,  
T.I.  
CCOUNTRY OF INFO--USSR  
SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 1, PP 77-83  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--HYPOXIA, CARBOHYDRATE METABOLISM, LIPID METABOLISM, RAT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3005/0361 STEP NO--UR/0301/70/016/001/0077/0083  
CIRC ACCESSION NO--AP0132590  
UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0132590

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGES IN HEXOKINASE AND PHOSPHORYLASE ACTIVITIES, GLYCOLYSIS RATE IN SKELETAL MUSCLES AND FREE FATTY ACIDS CONTENT IN THE PLASMA OF RATS SUBJECTED TO HYPOXIA, IMITATING CONDITIONS (7.600 M OF ALTITUDE DURING 1.5-5 HR) AND DURING THE TRAINING TO HYPOXIC STATE (SIMULATED ALTITUDES 2.500-7.600 M, 30 DAYS) HAVE BEEN STUDIED. IT HAS BEEN SHOWN THAT DURING THE FIRST PERIOD OF ADAPTATION TO THE PROLONGED OXYGEN STARVATION ONE MAY OBSERVE THE PICTURE SIMILAR TO THAT AT ACUTE HYPOXIA: THE LACK OF CHANGES IN HEXOKINASE AND PHOSPHORYLASE ACTIVITIES IN SKELETAL MUSCLES AND ELEVATION IN FREE FATTY ACIDS CONTENT IN BLOOD PLASMA. THE CHANGES IN CARBOHYDRATE METABOLISM WERE NOTED AT 20TH DAY OF TRAINING: THE DECREASE IN HEXOKINASE ACTIVITY AND RISE IN PHOSPHORYLASE A. CHANGES IN GLYCOLYSIS AND GLYCOGENOLYSIS RATE WAS CORRELATED WITH CHANGES IN ENZYHATIC ACTIVITY.

FACILITY: I. M. SECHENOV INSTITUTE OF DEVELOPMENTAL PHYSIOLOGY AND BIOCHEMISTRY USSR ACADEMY OF SCIENCES, LENINGRAD.

UNCLASSIFIED

USSR

ZHELVAKOV, B. B.

UDC 621.391:519.27

"Modeling a Noise Sequence Generator for Studying Invariant Systems of Detection"

Tr. Leningr. in-t aviats. priborostr. (Works of the Leningrad Institute of Aviation and Instrument Building), 1972, vyp. 74, pp 91-97 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A19)

Translation: The author presents an example of modeling random sequences on a digital computer. The sequences are designed for studying invariant systems of detection. The inverse function method is used as the basis for modeling. This method makes it possible to obtain simultaneously the quantile parameters of continuous distributions which are of particular significance within the theory of invariant, verification, resolving functions. The modeling was carried out on the Razdan-2 computer. The block-diagram of the program is given along with the modeling results (histograms) for the exponential and Rayleigh distribution series. Original article has five illustrations and three bibliographic entries. Resume.

1/1



USSR

UDC: 519.2

ZHELYAKOV, B. B.

"Methods of Estimating the Relative Effectiveness of Detection Systems"

Tr. Leningr. In-t Aviats. Priborostr. [Works of Leningrad Institute of Aviation Instrument Building], 1972, No 74, pp 76-83 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V119, by the author)

Translation: A review is presented of statistical theory methods for comparison of the effectiveness of decision functions, useful for application in the theory of detection, particularly the theory of nonparametric detection. The concepts of relative effectiveness, asymptotic relative effectiveness according to Pitman, Bakhadur and Rubin-Seturaman are studied. The approaches of Walsh and Chernov are briefly described. It is stated that the method of Bakhadur and the Rubin-Seturaman method are particularly useful for the study of non-linear rank nonparametric detection systems.

1/1

-6-

USSR

UDC: 573.953+547.917+547.593.261

14  
KLYASHCHITSKIY, B. A., PIMENOVA, V. V., BASHKATOVA, A. I., ZHELVAKOVA, E. G.,  
SOKOLOV, S. D., SHVETS, V. I., YEVSTIGNEYEVA, R. I., PREOBRAZHENSKIY, N. A.,  
Deceased, Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov

"Research in the Area of Derivatives of Asymmetrically Substituted Myoinositol.  
V. Complete Synthesis of sn-Myoinositol 1-Phosphate"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2482-2489

Abstract: A new method is used for synthesizing 1,2,4,5,6-penta-O-benzylmy-  
oinositol. The compound is separated into antipodes through diastereomeric  
orthoesters with D-mannose. Complete synthesis of the 1-phosphate of sn-myoin-  
ositol identical to the natural compound is carried out on the basis of 2,3,4-  
5,6-penta-O-benzyl-sn-myoinositol.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70  
 TITLE--FIRST SYNTHESIS OF NATURAL PHOSPHATIDYL-MYO-INO-SITOL -U-  
 AUTHOR--(05)-ZHELVAKOVA, E.G., KLVASHCHITSKIY, B.A., SHVETS, V.I.,  
 YEVSTIGNEYEVA, R.P., PREOBRAZHENSKIY, N.A.  
 COUNTRY OF INFO--USSR  
 SOURCE--ZH. OBSHCH. KHIM. 1970, 40(1) 248 Z  
 DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL SYNTHESIS, GLYCEROL, PHOSPHORUS COMPOUND, SPECTRUM,  
 BIOCHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAME--1992/1419

STEP NO--UR/0079/70/040/001/0248/0248

CIRCULATION NO--AP0112413

UNCLASSIFIED